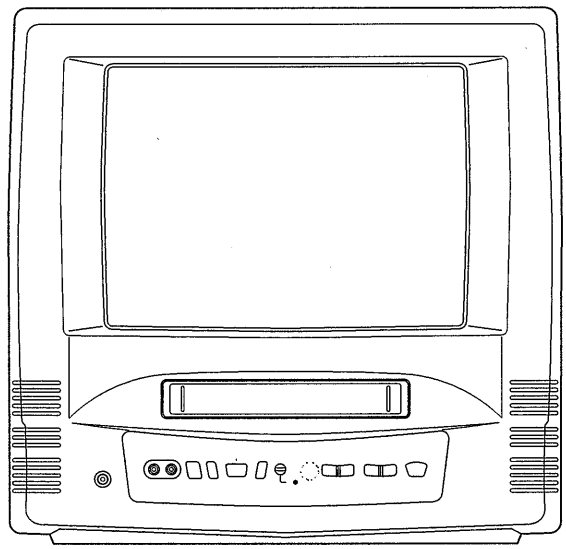
Symphonic

SERVICE MANUAL

THIS SERVICE MANUAL (WF-13C1) CONTAINS ONLY DIFFERENCE PARTS FROM ORIGINAL MODEL. FOR ALL OTHER DATA, SEE ORIGINAL SERVICE MANUAL MODELS SC313A/F313CA.

13" COLOR TV/VCR COMBINATION

WF-13C1



Comparison chart of Mechanical Parts

Ref. No.	Description	SC313A (Original) Parts No.	WF-13C1 (New) Parts No.
A-3 ⚠	RATING LABEL	0EM405403	0EM406130
S-1	CARTON	0EM405405	0EM406131
S-4	SERIAL NO.LABEL	0EM405406	0EM406132
X-2 ⚠	OWNER'S MANUAL	0EMN01601	0EMN01754

船井サービス株式会社
マニュアル課
NOV. 15. 2000

WF-13C1

T5119UV

Printed in Japan
2000-11-15 HO

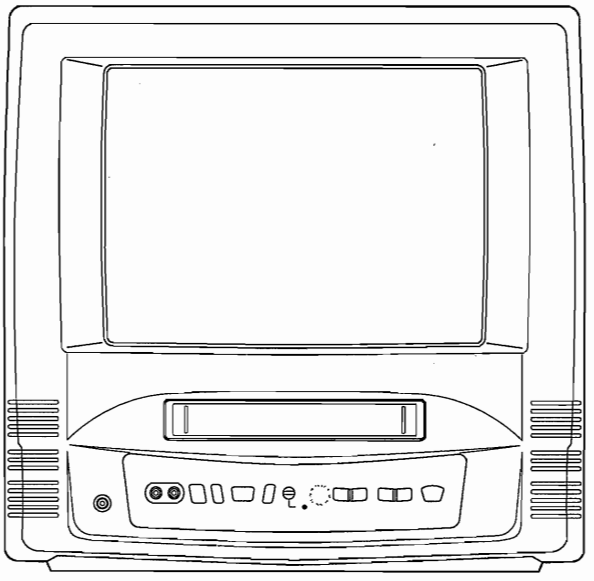
FUNAI Symphonic

SERVICE MANUAL

Sec. 1: Main Section	Sec. 2: Deck Mechanism Section	Sec. 3: Exploded Views and Parts List Section
● Specifications ● Preparation for Servicing ● Adjustment Procedures ● Schematic Diagrams ● CBA' s	● Standard Maintenance ● Alignment for Mechanism ● Disassembly/Assembly of Mechanism	● Exploded Views ● Parts List

13" COLOR TV/VCR COMBINATION

SC313A/F313CA



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

MAIN SECTION

13" COLOR TV/VCR COMBINATION

SC313A
F313CA

Sec. 1: Main Section

- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA' s**

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SPECIFICATIONS

✶ Mode ---------SP mode unless otherwise specified

✶ Test input terminal

<Except Tuner> ----------Video input (1Vp-p)

Audio input (-10dB)

<Tuner> ----------Ant. input (80dBμV) Video: 87.5%

Audio: 25kHz dev (1kHz Sin)

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Over Scan	—	%	90	—
2. Linearity	Horizontal	%	—	15
	Vertical	%	—	10
3. High Voltage	—	kV	22	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.3
	Corner	m/m	—	1.5
	Side	m/m	—	1.2
2. Tint Control Range	—	deg	±30	—
3. Contrast Control Range	—	dB	6	4
4. Brightness	APL 100%	ft-L	55	40
5. Color Temperature	—	K	9200	—

<VCR>

Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	(R/P)	Line	230	200
2. Jitter (Low)	(R/P)	μS	0.05	0.2
3. S/N Chroma AM (SP)	(R/P)	dB	38	33
PM (SP)	(R/P)	dB	36	33
4. Wow & Flutter (RMS)	(R/P)	%	0.25	0.5

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Video S/N	—	dB	45	40
2. Audio S/N (W/LPF)	—	dB	43	40

<AUDIO>

All items are measured across 8Ω resistor at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power (Max.)	(R/P)	W	1.0	0.8
2. Audio S/N (W/LPF)	(R/P)	dB	40	36
3. Audio Distortion (W/LPF)	(R/P)	%	3.0	5.0
4. Audio Freq. Response (-10dB Ref. 1KHz)	200Hz (R/P) 8kHz (R/P)	dB dB	-2.0 0	-2.0 ± 5.0 0 ± 6.0

Note: Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

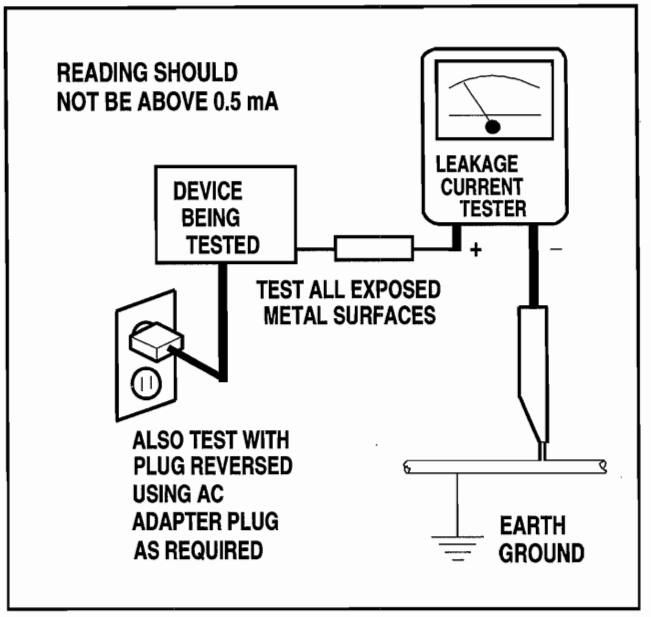
1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:

a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. Antenna Cold Check - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.

d. Leakage Current Hot Check - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. X-Radiation and High Voltage Limits - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing

is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning -** The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. **Hot Chassis Warning -**

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis normally have 85V AC(RS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not is- olated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (⚠) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continu- ously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the (⚠) symbol are critical for safety.

Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing

2) Double insulated wires

3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape

2) PVC tubing

3) Spacers

4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets. etc.) do not remain inside the set.

K. Crimp type wire connector

When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector (discard it).

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

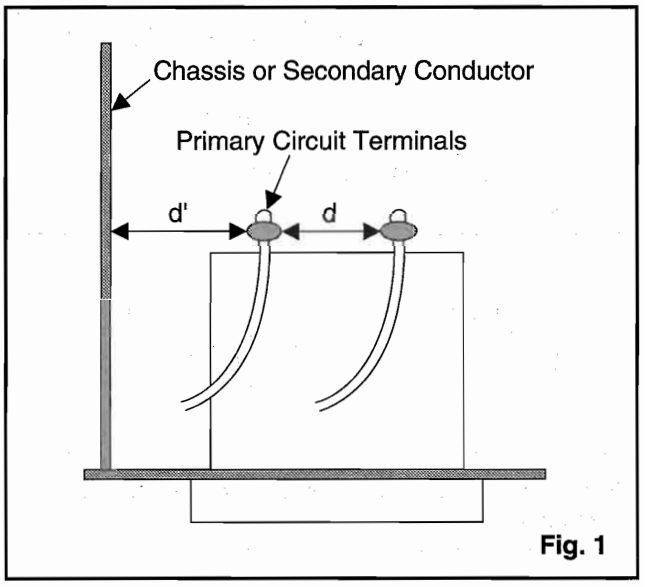


Fig. 1

2. Leakage Current Test

Confirm specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

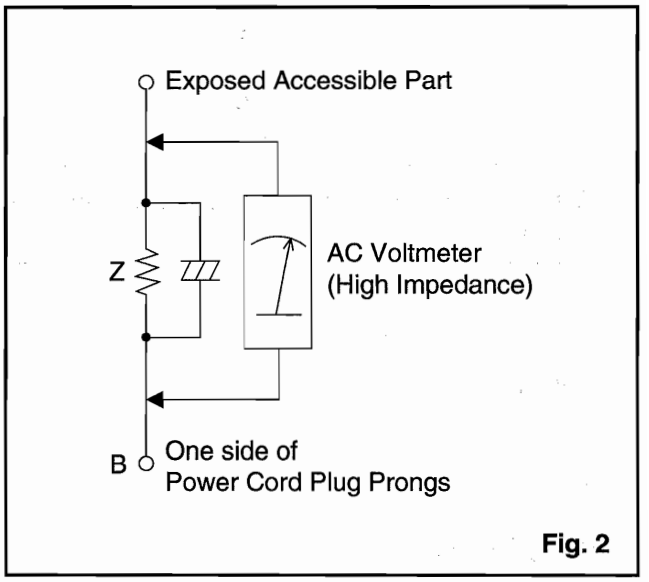


Fig. 2

Table 2 : Leakage current ratings for selected areas

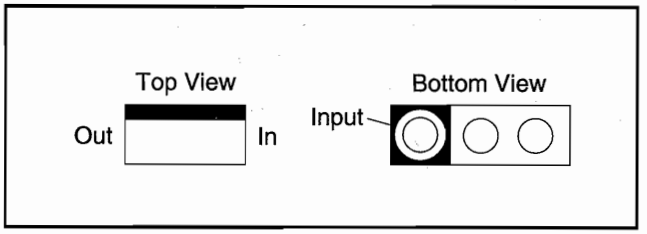
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA or CANADA	0.15μF CAP. & 1.5kΩ RES. connected in parallel	i≤0.5mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

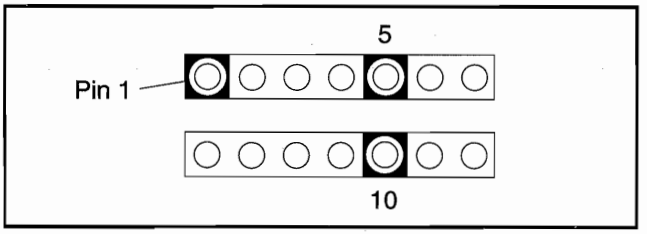
STANDARD NOTES FOR SERVICING

Circuit Board Indications

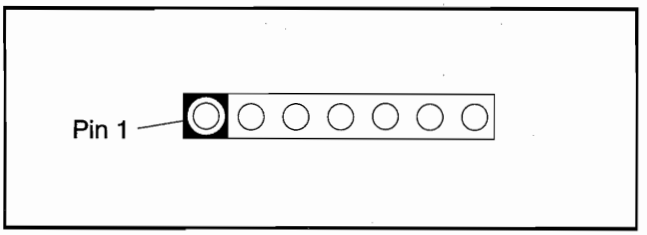
1. The output pin of the 3 pin Regulator ICs is indicated as shown:



2. For other ICs, pin 1 and every 5th pin is indicated as shown:

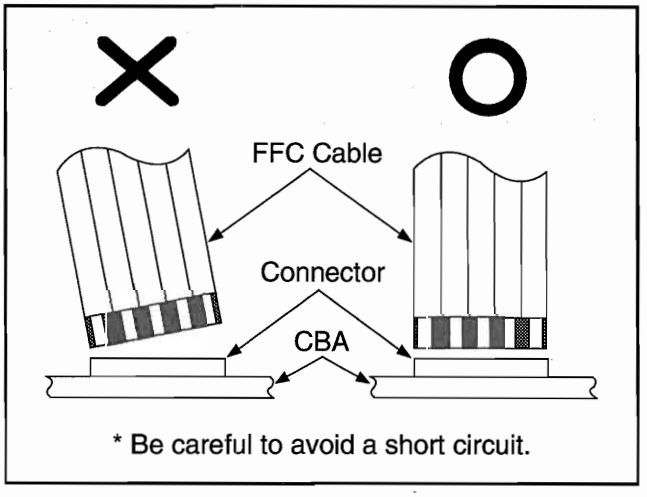


3. The 1st pin of every pin connector are indicated as shown:



Instructions for Connectors

1. When you connect or disconnect FFC cable (connector), be sure to disconnect the AC cord.
2. FFC cable (connector) should be inserted parallel into the connector, not at an angle.

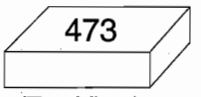


[CBA= Circuit Board Assembly]

How to Read the Values of the Rectangular Type Chip Components

Example:

(a) Resistor



= 473 = 47 [kΩ] (Top View)

(b) Capacitor

= Not Shown (Top View)

Caution:

Once chip parts (Resistors, Capacitors, Transistors, etc.) are removed, they must not be reused. Always use a new part.

Replacement Procedures for Leadless (Chip) Components

The Following Procedures are Recommended for the Replacement of the Leadless Components Used in this Unit.

1. Preparation for replacement

a. Soldering Iron
Use a pencil-type soldering iron (less than 30 watts).

b. Solder
Eutectic solder (Tin 63%, Lead 37%) is recommended.

c. Soldering time
Do not apply heat for more than 4 seconds.

d. Preheating
Leadless capacitor must be preheated before installation. (130°C~150°C, for about two minutes.)

Notes:

a. Leadless components must not be reused after removal.

b. Excessive mechanical stress and rubbing for the component electrode must be avoided.

2. Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes has melted, remove leadless component with a twisting motion.

Notes:

a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.

b. Take care not to break the copper foil on the printed board.

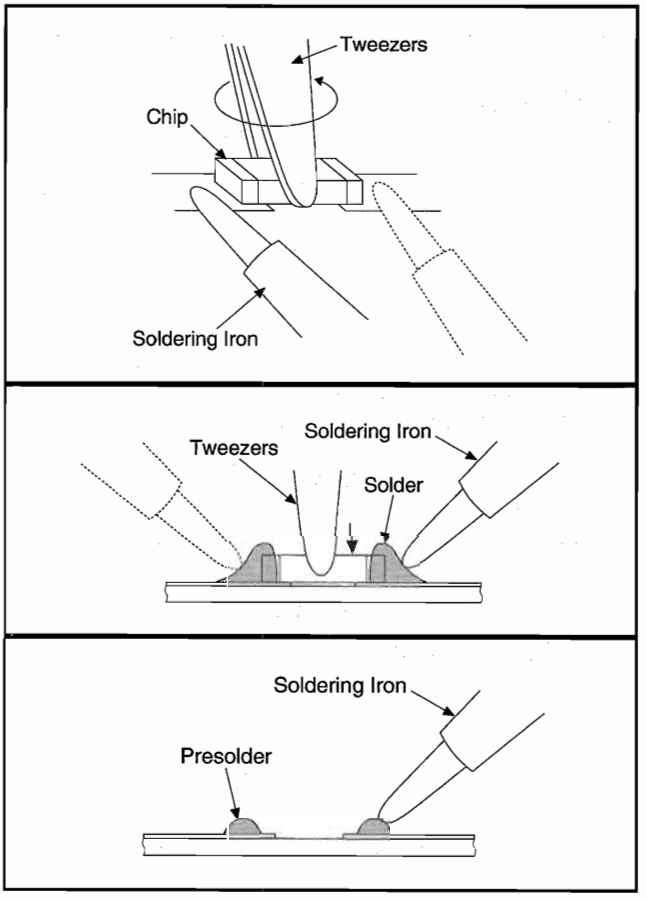
3. Installing the leadless component

a. Presolder the contact points of the circuit board.

b. Press the part downward with tweezers and solder both electrodes as shown below.

Note:

Do not glue the replacement leadless component to the circuit board.



How to Remove / Install Flat Pack IC

Caution:

1. Do not apply the hot air to the chip parts around the Flat Pack-IC for over 6 seconds as damage may occur to the chip parts. Put Masking Tape around the Flat Pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The Flat Pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or solder lands under the IC when removing it.

1. Removal

With Hot - Air Flat Pack - IC Desoldering Machine:

a. Prepare the Hot - Air Flat Pack - IC Desoldering Machine, then apply hot air to Flat Pack - IC (about 5~6 seconds). (Fig. S-1-1)

b. Remove the Flat Pack- IC with tweezers while applying the hot air.

With Soldering Iron:

a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)

b. Lift each lead of the Flat Pack - IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air Desoldering Machine. (Fig. S-1-4)

With Iron Wire:

a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)

b. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

c. Pull up on the wire as the solder melts so as to lift the IC leads from the CBA contact pads, while heating the pins using a fine tip soldering iron or hot air blower.

Note:

When using a soldering iron, care must be taken to ensure that the Flat Pack - IC is not being held by glue, or when it is removed from the CBA, it may be damaged if force is used.

2. Installation

a. Using desoldering braid, remove the solder from the foil of each pin of the Flat Pack - IC on the CBA, so you can install a replacement Flat Pack - IC more easily.

b. The "●" mark on the Flat Pack - IC indicates pin 1 (See Fig. S-1-6). Make sure this mark matches the 1 on the CBA when positioning for installation. Then pre - solder the four corners of the Flat Pack- IC (See Fig. S-1-7).

c. Solder all pins of the Flat Pack - IC. Make sure that none of the pins have solder bridges.

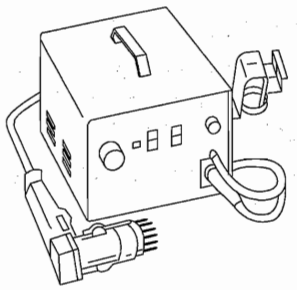


Fig. S-1-1

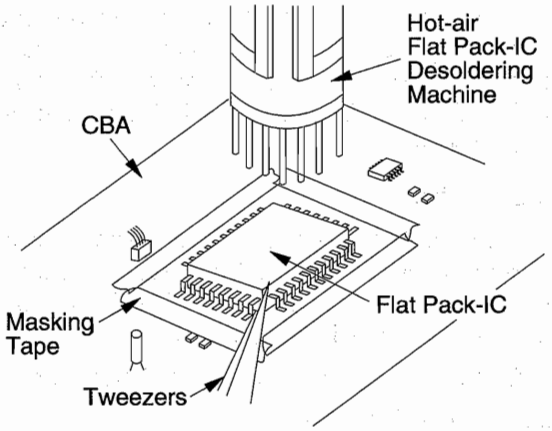


Fig. S-1-2

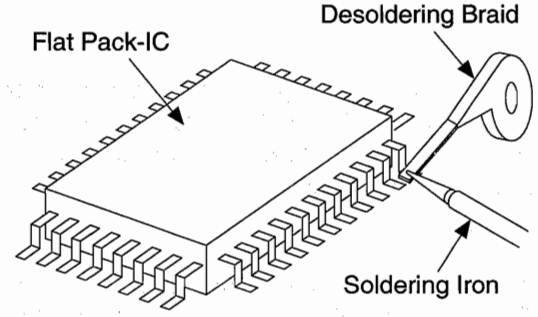


Fig. S-1-3

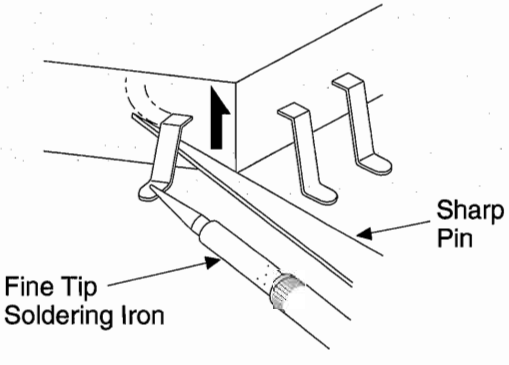


Fig. S-1-4

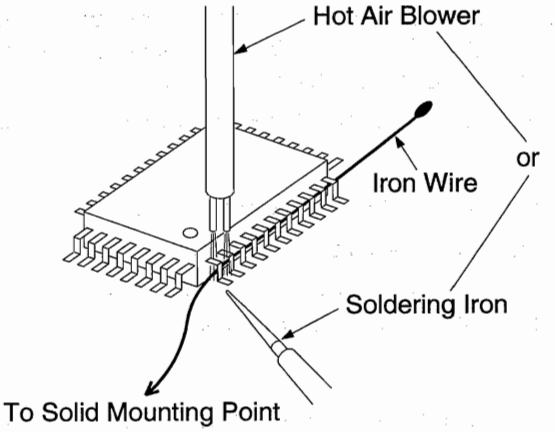


Fig. S-1-5

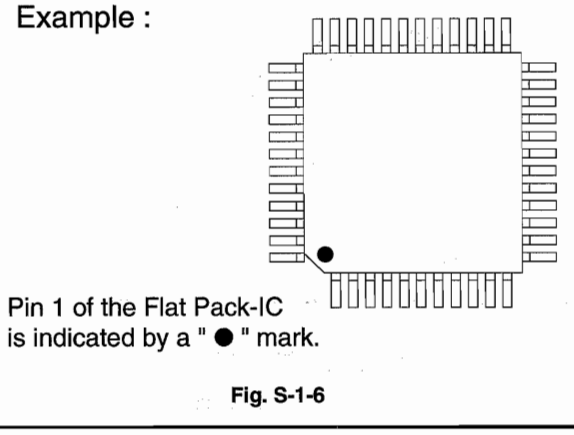


Fig. S-1-6

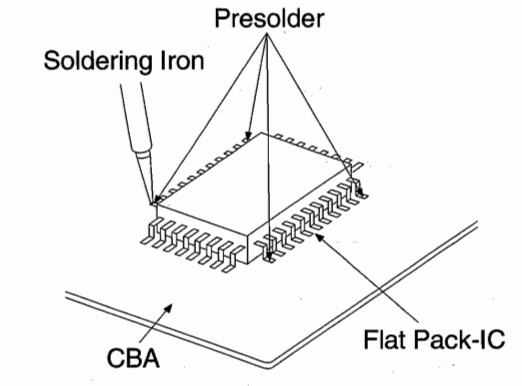


Fig. S-1-7

Instructions for Handling Semiconductors

Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

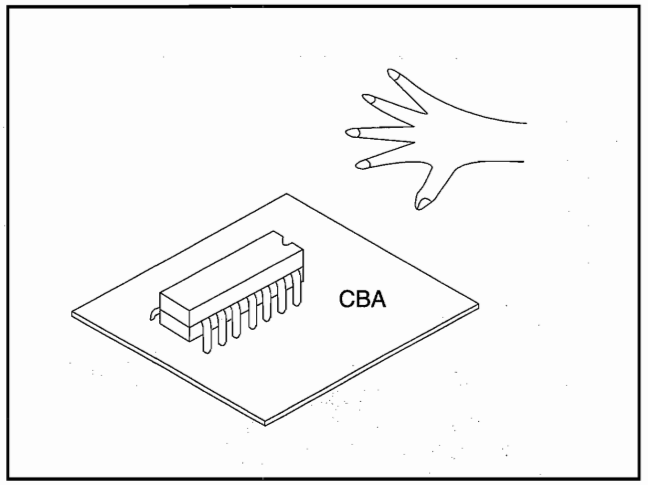
Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

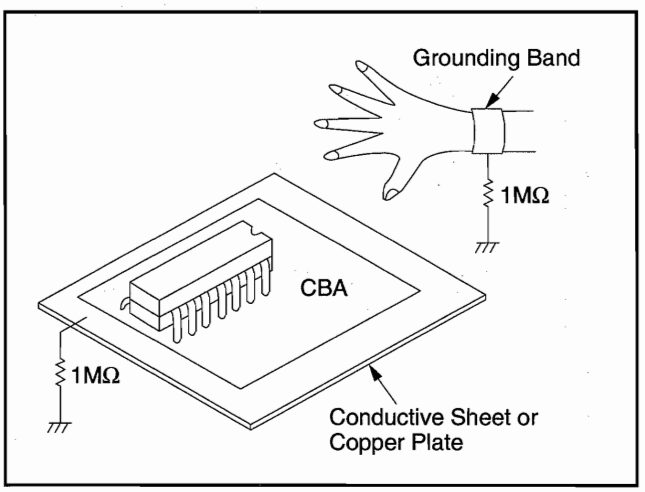
Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the work bench or other surface, where the semiconductors are to be placed. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors to clothing.

Incorrect



Correct



PREPARATION FOR SERVICING

How to Use U21 Deck Extension Cable

(1) Remove Deck Mechanism Assembly. If needed, remove the Main CBA from Tray Chassis.

Refer to "Cabinet Disassembly Instructions" on page 1-6-1.

(2) Connect Main CBA and Deck with the U21 Deck Extension Cable (A) as shown in Fig. 1. And connect Main CBA and Deck with U21 Deck Extension cable (B) as shown in Fig. 1. Connect a clip on U21 Deck Extension Cable (B) to J254 on the Main CBA.

(U21 Deck Extension Cable : N1201XA)

(3) Set SW212(LD-SW) on the Main CBA to Service position showing in Fig.1.

Note 1: There are 3 types of U21 Deck Extension Cable (A). They are for 2 Head, 4 Head, and Hi-Fi. Use a connector indicated as shown. Be careful not to let the unused connector contact other parts.

Note 2: Some noise will be present in the playback picture when the extension cable is used.

Note 3: Before installing the Deck Assembly, be sure to align two triangle marks of SW1001 on U21 Deck Extension Cable (B). Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of SW1001, the shaft of Cam Gear with the hole of SW1001 as shown in Fig.2.

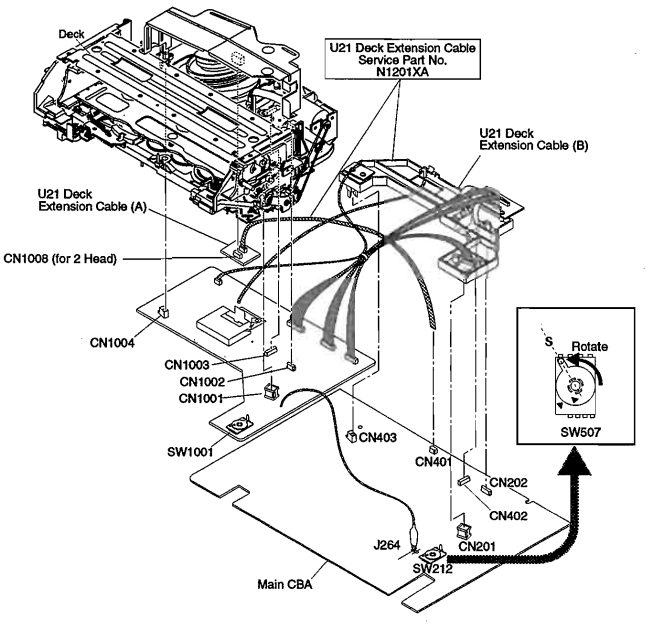


Fig 1

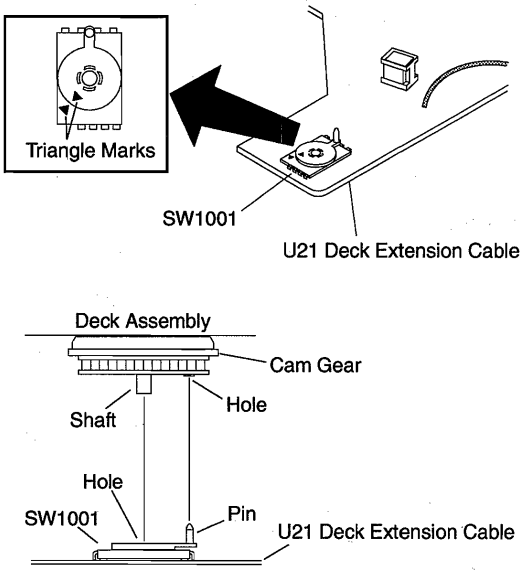


Fig 2

How to Enter the Service Mode

Caution: 1

1. Optical sensors system are used for Tape Start and End Sensor on this equipment. Read this page carefully and prepare as described on this page before starting to service; otherwise, the unit may operate unexpectedly.

Preparing: 1

1. Cover Q202 (START SENSOR) and Q201 (END SENSOR) with Insulation Tape or enter the service mode to activate Sensor Inhibition automatically.

Note: Avoid playing, rewinding or fast forwarding the tape to its beginning or end, because both Tape End Sensors are not active.

How to Enter the Service Mode

1. Turn power on.
2. Use service remote control unit and press WAKE-UP/SLEEP key. (See page1-7-1)
3. When entering the service mode, one of the number (1, 2 or 4) will display at corners of the screen.
4. During the service mode, electrical adjustment mode can be selected by remote control key. (Service remote control unit).

   Details are as follows.

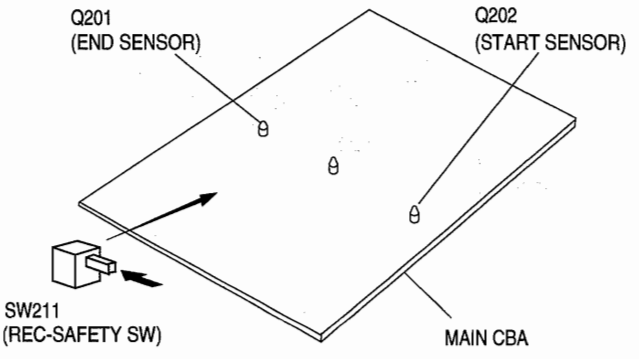
Key	Adjustment Mode
MENU	Picture adjustment mode : Press the MENU button to change from BRT (Bright), *CNT (Contrast), *CLR (Color), *TNT(Tint) and *V-T. Press CH UP/DOWN key to display Initial Value, Maximum and Minimum cyclically. *Marked items are not necessary to adjust normally.
0	C-Trap adjustment mode: See adjustment instructions page 1-7-2 .
1	No need to use.
2	AGC/H adjustment mode: See adjustment instructions page 1-7-2.
3	Auto AFT adjustment mode: See adjustment instructions page 1-7-1.
4	Auto record mode: Perform recording (15 Sec.)-->Stop-->Rewind (Zero return) automatically.
5	Head switching point adjustment mode: See adjustment instructions page 1-7-5.
6	No need to use.
7	Purity check mode: Shows Red, Green or Blue on the screen when the CH UP/DOWN keys are pressed.
8	H. Shift adjustment mode: See adjustment instructions page 1-7-3.
9	V.size/V. shift adjustment: See adjustment instructions page 1-7-3.

Caution: 2

1. The deck mechanism assembly is mounted on the Main CBA directly, and SW211 (REC-SAFETY SW) is mounted on the Main CBA. When deck mechanism assembly is removed from the Main CBA due to servicing, this switch can not be operated automatically.

Preparing: 2

1. To eject the tape, press the STOP/EJECT button on the unit (or Remote Control).
2. When you want to record during the Service mode, press the Rec button while depressing SW211 (REC-SAFETY SW) on the Main CBA.



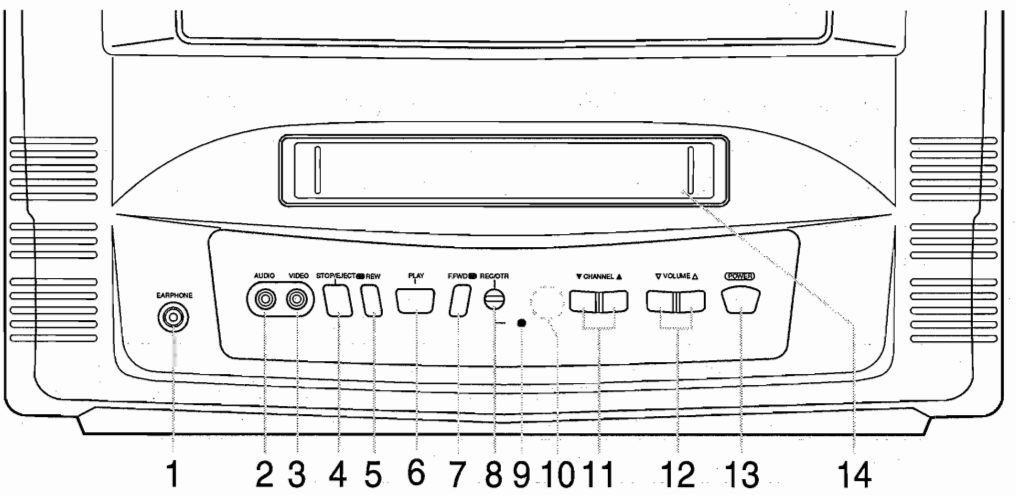
OPERATING CONTROLS AND FUNCTIONS

NOTE:

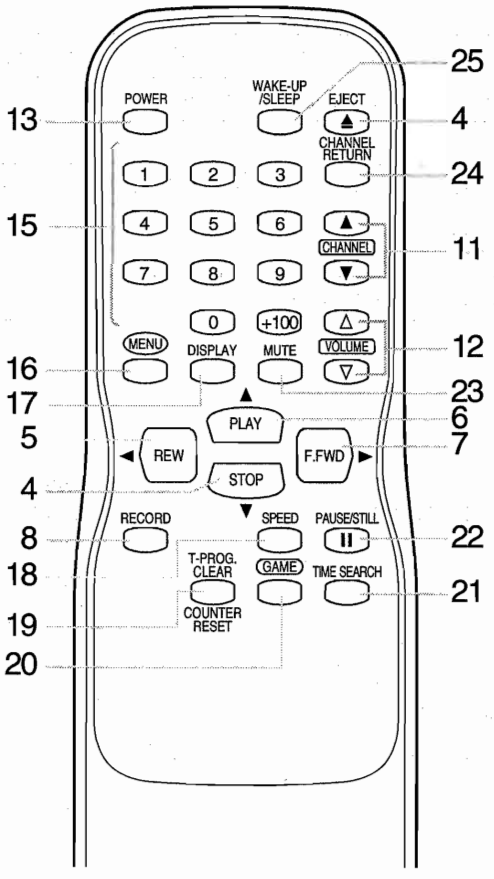
- We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control.

  If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

- TV/VCR FRONT PANEL - [Fig.1]



- REMOTE CONTROL - [Fig.2]



1 EARPHONE jack– Connects to earphones (not supplied) for personal listening. The size of jack is 1/8" monaural (3.5mm).

2 AUDIO input jack– Connect to the audio output jack of your audio equipment, video camera or another VCR.

3 VIDEO input jack– Connect to the video output jack of your video camera or another VCR.

4 STOP button– Press to stop the tape motion.

EJECT button– Press in the Stop mode to remove tape from TV/VCR.

▼ button–

- Press to select setting modes from the on screen menu.
- Press to enter digits when setting program. (for example: setting clock or timer program)

5 REW button– Press to rewind the tape, or to view the picture rapidly in reverse during playback mode. (Rewind Search)

◀ button–

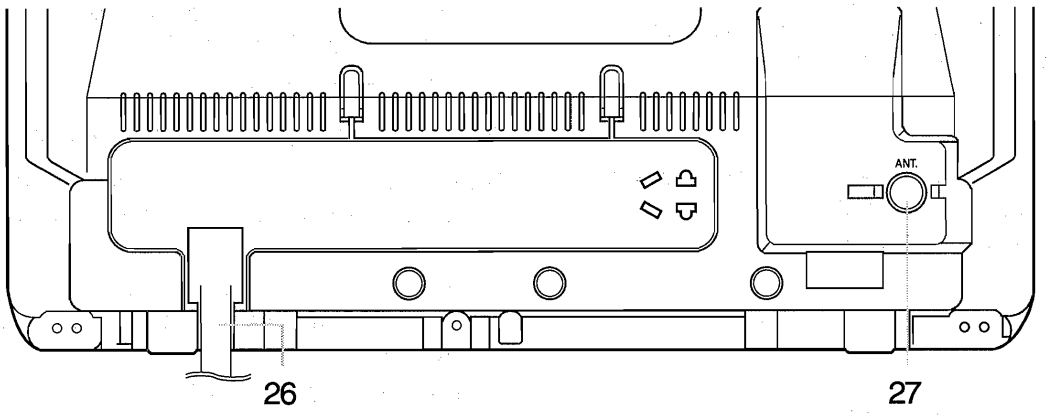
- Press to select a mode from a particular menu. (for example: LANGUAGE or USER'S SET UP)

6 PLAY button– Press to begin playback.

▲ button–

- Press to select setting modes from the on screen menu.
- Press to enter digits when setting program. (for example: setting clock or timer program)

- REAR VIEW - [Fig.3]



7 **F.FWD button–** Press to rapidly advance the tape, or to view the picture rapidly in forward during playback mode. (Forward Search)

► button–

- When setting program (for example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input.
- Press to determine setting modes from on screen menu.
- Press to select a mode from a particular menu. (for example: LANGUAGE or USER'S SET UP)

8 **REC button–** Press for manual recording.

OTR button– Activates One Touch Recording. (only on the TV/VCR)

9 **RECORD indicator–** Flashes during recording. Lights up in the Stand-by mode for Timer Recording.

10 **Remote Sensor Window–** Receives the infrared signals from the remote control.

11 **CHANNEL ▲ / ▼ buttons–** Press to select the desired channels for viewing or recording.

You may display the main menu on the TV screen by pressing repeatedly this button on the TV/VCR.

TRACKING function– Press to minimize video 'noise' (lines or dots on screen) during playback mode.

12 **VOLUME △ / ▽ buttons–** Adjust the volume level.

13 **POWER button–** Press to turn TV/VCR on and off. Press to activate timer recording.

14 **Cassette compartment**

15 **Number buttons–** Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press the 0 button and then 1 to 9.

+100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press the "+100" button then press "2" and "5").

16 **MENU button–** Press to display the main menu on the TV screen.

17 **DISPLAY button–** Display the counter or the current channel number and current time on the TV screen.

18 **SPEED button–** Press to choose the desired recording speed:SP/SLP.

19 **T-PROG. CLEAR button–** Press to cancel a setting of timer program.

COUNTER RESET button– Press to reset counter to 0:00:00.

20 **GAME button–** Sets the game mode and external input mode at the same time.

21 **TIME SEARCH button–** Press to activate Time Search mode.

22 **PAUSE/STILL button–** Press to temporarily stop the tape during the recording or to view a still picture during playback.

23 **MUTE button–** Mutes the sound. Press it again to resume sound.

24 **CHANNEL RETURN button–** Press to go back to the previously viewed channel. For example, pressing this button once will change channel display from 3 (present channel) to 10 (previously viewed channel), and pressing it a second time will return from 10 to 3.

25 **WAKE UP/SLEEP button–** Sets the Wake up or Sleep Timer.

26 **Power cord–** Connect to a standard AC outlet (120V/60Hz).

27 **ANT. terminal–** Connect to an antenna or cable system.

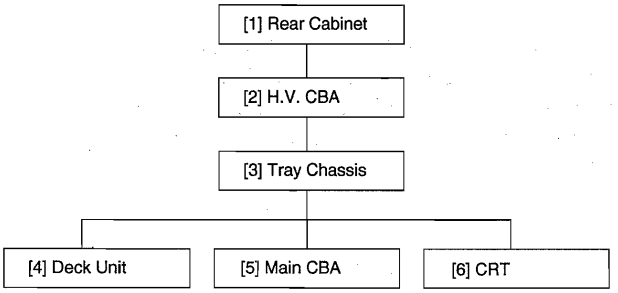
CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

STEP/ LOC. NO.	PART	REMOVAL		
		FIG. NO.	REMOVE/*UNLOCK/ RELEASE/UNPLUG/ UNCLAMP/DESOLDER	NOTE
[1]	Rear Cabinet	1, 2	4(S-1), 1(S-2)	1
[2]	H/V CBA (With Holder)	3, 4, 5	Anode Cap, CRT CBA, CL501A, CN503, CN571, CN575, CN602 2(S-3),1(L1))	2
[3]	Tray Chassis	3, 5	CN601, CN801	3
[4]	Deck Unit	3	7(S-4)	4
[5]	Main CBA	3	5(S-5)	5
[6]	CRT	4	4(S-6)	6
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤

Note :

①. Order of steps in Procedure. When reassembling, follow the steps in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.

②. Parts to be removed or installed.

③. Fig. No. showing Procedure of Part Location

④. Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two Screw (S-2)

⑤. Refer to the following"Reference Notes in the Table" following.

Reference Notes in the Table

1. Removal of the Rear Cabinet.

   Remove Screws 4(S-1) and 1(S-2).

Caution !!

Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

2. Removal of the H/V CBA. Discharge the Anode Lead of the CRT with the CRT Ground before removing the Anode Cap.

   Disconnect the following: Anode Cap., CRT CBA, CL501A, CN503, CN571, CN575 and CN602.

   Remove H/V CBA with Holder.

   Remove Screws 2(S-3) and unlock 1(L-1). Pull the H/V CBA backward.

3. Removal of the Tray Chassis. Disconnect CN601 and CN801. Pull the Tray Chassis backward.

4. Removal of the Deck Unit. Remove Screws 7(S-4). Lift up the Deck Unit.

5. Removal of the Main CBA. Remove Screws 5(S-5) and Pull up the Main CBA.

6. Removal of the CRT. Remove Screws 4(S-6) and pull the CRT backward.

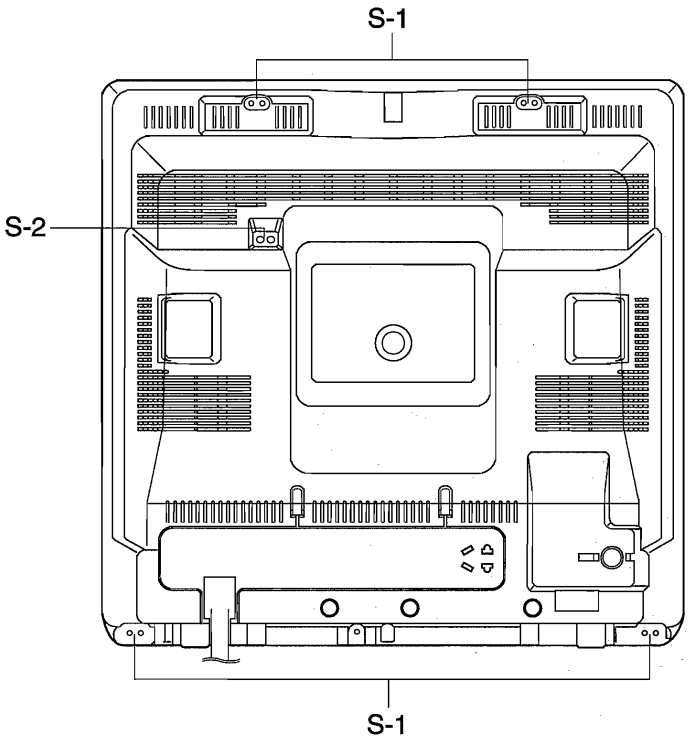
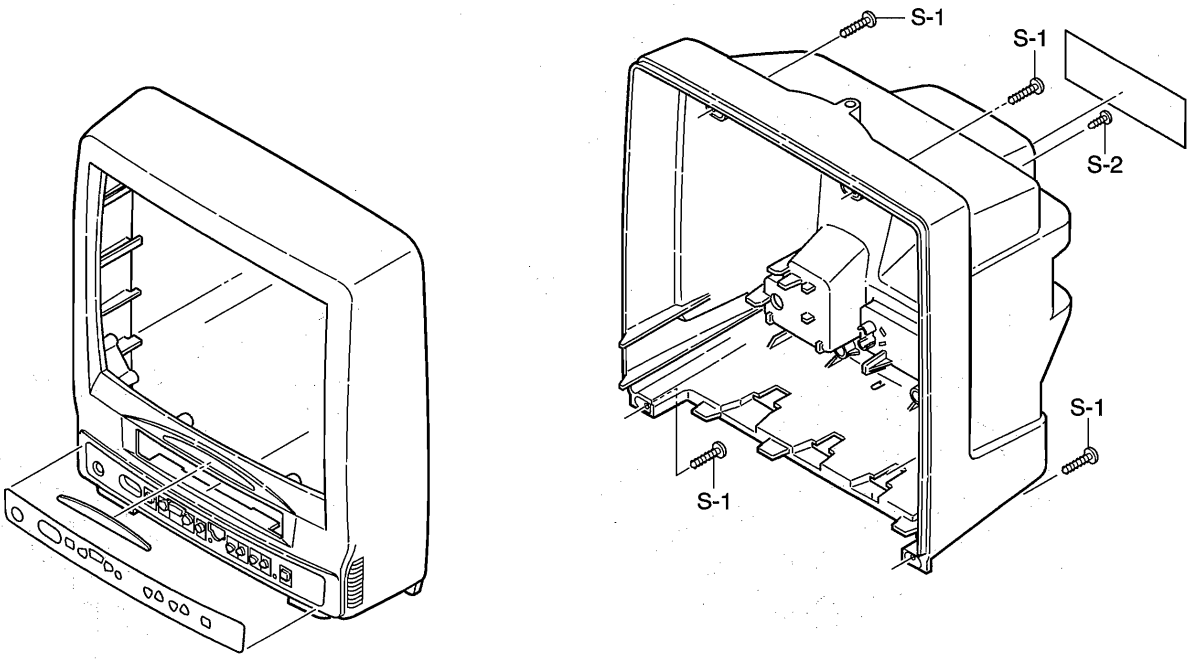


Fig. 1



[1] REAR CABINET

Fig. 2

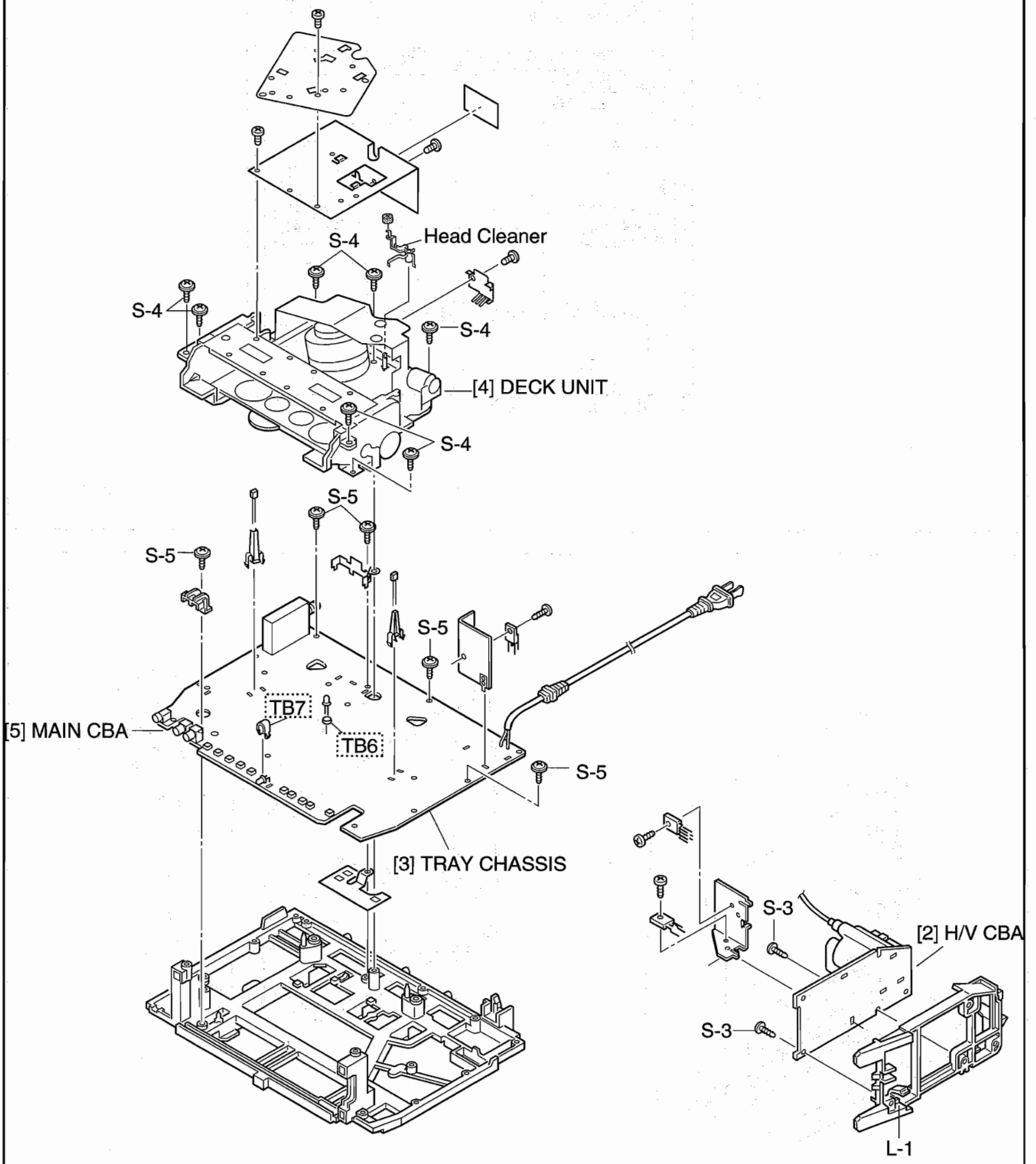
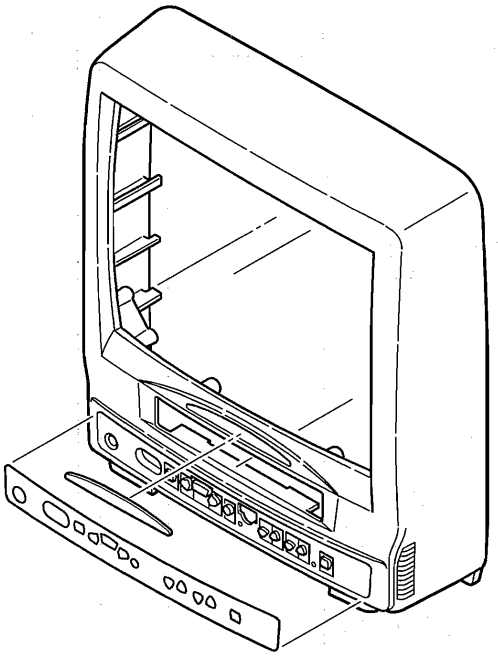

S-4
Head Cleaner
S-4
S-4
[4] DECK UNIT
S-4
S-5
S-5
S-5
TB7
[5] MAIN CBA
TB6
S-5
[3] TRAY CHASSIS
S-3
[2] H/V CBA
S-3
L-1

Fig. 3



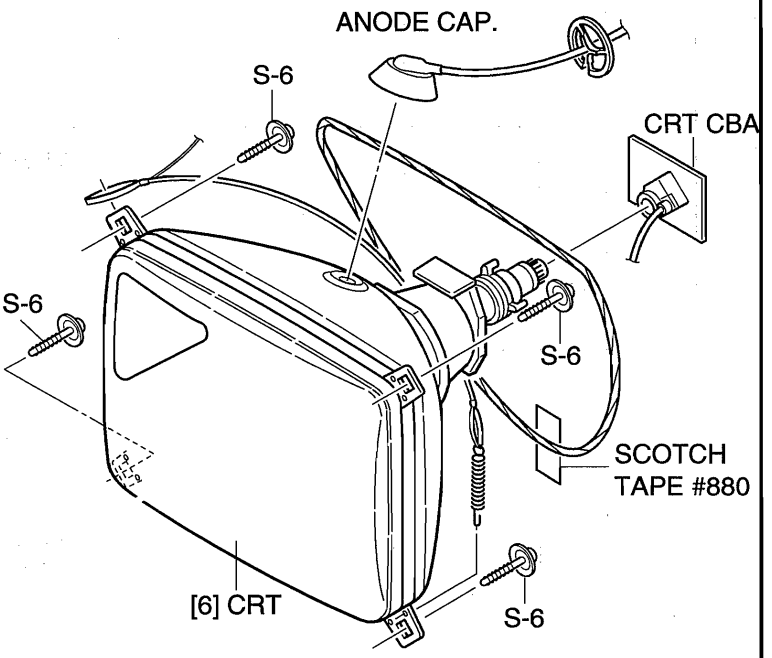


Fig. 4

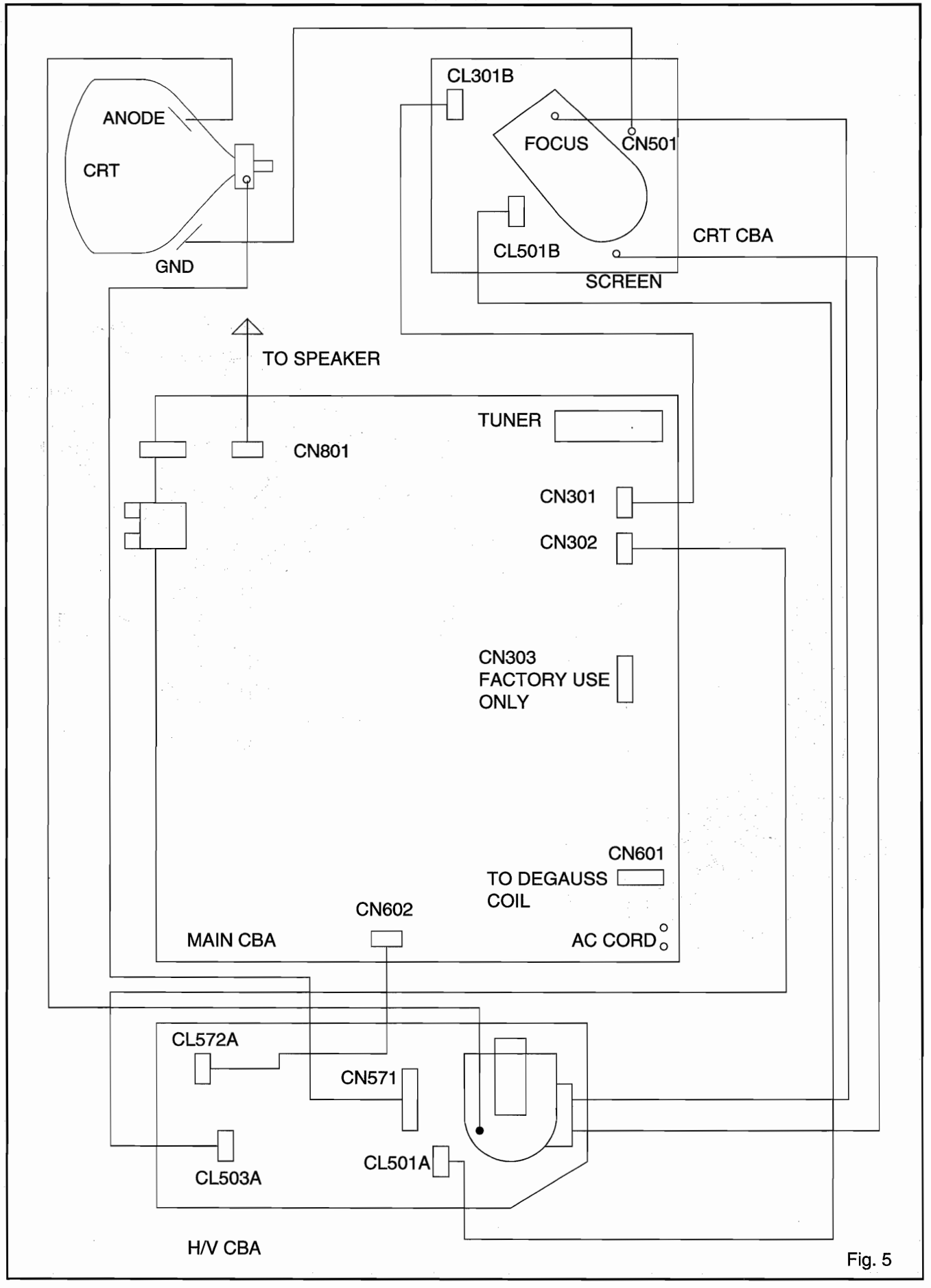

CL301B
ANODE
CRT
FOCUS
CN501
CL501B
CRT CBA
GND
SCREEN
TO SPEAKER
TUNER
CN801
CN301
CN302
CN303
FACTORY USE
ONLY
CN601
TO DEGAUSS
COIL
CN602
MAIN CBA
AC CORD
CL572A
CN571
CL503A
CL501A
H/V CBA

Fig. 5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:
"CBA" is abbreviation for " Circuit Board Assembly".

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts.

It is important to perform these adjustments only after all repairs and replacements have been completed.

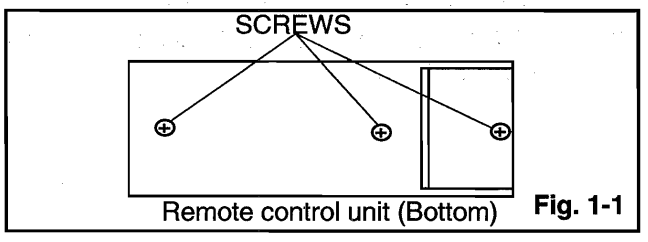
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

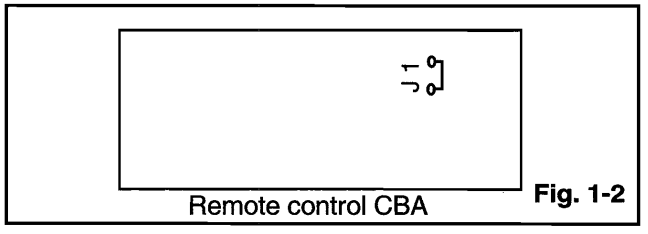
1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. AC Milli Voltmeter (RMS)
3. Alignment Tape (FL8A, FL8N), Blank Tape
4. DC Voltmeter
5. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div,
   F-Range: DC~AC-60MHz
6. Frequency Counter
7. Plastic Tip Driver

How to make service remote control unit:

1. Prepare normal remote control unit. (Part No. N0107UD) Remove 3 screws from the back lid. (Fig. 1-1)
2. Added J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)



Remote control unit (Bottom) **Fig. 1-1**



Remote control CBA **Fig. 1-2**

How to Set up the Service mode:

Service Mode:

1. Use the service remote control unit.
2. Turn the power on.
3. Press " WAKE-UP/SLEEP " button on the service remote control unit.

1. DC 105V (+B) Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and unit does not operate correctly.

Test Point	Adjustment Point	Mode	Input
J297 (+B) J257 (GND)	VR601	---	---
Tape	**M. EQ.**	**Spec.**	
---	DC Voltmeter	+105±0.5V DC.	

Note: J297(+B), J257(GND), VR601 --- Main CBA

1. Connect the unit to AC Power Outlet.
2. Connect DC Volt Meter to J297(+B) and J257(GND).
3. Adjust VR601 so that the voltage of J297(+B) becomes +105±0.5V DC.

2. Auto AFT (VCO) Adjustment

Purpose: To operate AFT correctly.

Symptom of Misadjustment: AFT does not work correctly and/or synchronization is faulty.

Test Point	Adjustment Point	Mode	Input
---	---	VIDEO	---
Tape	**M. EQ.**	**Spec.**	
---	---	---	

1. Set the unit to the VIDEO mode with no signal input.
2. Enter the Service mode. (See Page 1-4-2) Then Press " 3 " button on the remote control unit
3. If the screen color changes to " Green " then this adjustment is finished.
4. If the screen color changes to " Red " then this adjustment is failed. Repeat steps 1 and 2 or check connection and input signal.

3. TV AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test Point	Adjustment Point	Mode	Input
INT. MONITOR	CH. ▲ / ▼ buttons	---	Color Bar 67.25MHz 60dBμV
Tape	M. EQ.	Spec.	
---	Pattern Generator DC Volt Meter	+2.3±0.3VDC +2.5±0.3VDC +2.6±0.3VDC	

Notes: INT. MONITOR --- Main CBA

1. Enter the Service mode. (See Page 1-4-2) Then press number 2 button on the remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 60dBμV)

3-1. Press CH. ▲ / ▼ buttons so that the voltage of INT. MONITOR becomes +2.3±0.3V DC. (Tuner Type No. TEDH9X203A)

3-2. Press CH. ▲ / ▼ buttons so that the voltage of INT. MONITOR becomes +2.5±0.3V DC. (Tuner Type No. B8055AR)

3-3 Press CH. ▲ / ▼ buttons so that the voltage of INT. MONITOR becomes +2.6±0.3V DC. (Tuner Type No. NJH3022U254)

4. Turn the Power off and on again.

4-1. H Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
INT. MONITOR	CH ▲ / ▼ buttons	VIDEO	----
Tape	**M. EQ.**	**Spec.**	
----	Frequency Counter	15.734kHz±300Hz	

Note: INT. MONITOR --- Main CBA

1. Connect Frequency Counter to INT. MONITOR.
2. Set the unit to the VIDEO mode and no input is necessary. Enter the Service mode. (See Page 1-4-2)
3. Operate the unit for at least 20 minutes.
4. Press " 2 " button on the Remote Control Unit and Select H-ADJ Mode. (By pressing " 2 " button the display will change H-ADJ and AGC cyclically).
5. Press CH ▲ / ▼ buttons on the Remote control Unit so that the display will change " 0 " to " 7 ".

   At this moment, Choose display " 0 " to " 7 " when the Frequency counter shows 15.734kHz±300Hz or closer.
6. Turn the power off and on again.

4-2. C-Trap Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
J291 (B-Out)	CH ▲ / ▼ buttons	---	Color Bar
Tape	**M. EQ.**	**Spec.**	
----	Oscilloscope	200mV P-P	
Figure			

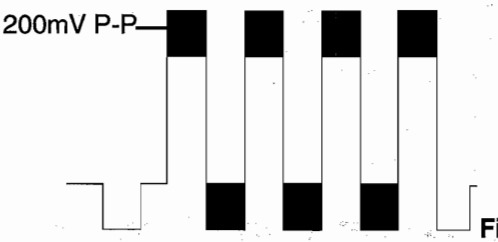


Fig. 2

Note: J291 (B-Out)--- Main CBA

1. Connect Oscilloscope to J291.
2. Input a color bar signal from RF input. Enter the Service mode. (See Page 1-4-2)
3. Press " 0 " button on the remote control unit and select C-TRAP mode.
4.

Press CH ▲ / ▼ buttons on the remote control unit so that the carrier leakage (3.58MHz) on B-Out becomes 200mV P-P on the oscilloscope reading.

5. Turn the power off and on again.

5. V. Size Adjustment

Purpose: To obtain correct vertical width of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

Note:

1. Enter the Service mode. (See Page 1-4-2)
   Press " 9 " button on the remote control unit and select V-S mode. (By pressing " 9 " button the display will change V-P and V-S cyclically).
2. Input the Monoscope pattern.
3. Press CH ▲ / ▼ buttons on the remote control unit so that the monoscope pattern is 90±5% of display size and the circle is round.

6. V. Shift Adjustment

Purpose: To obtain correct vertical position of screen image.

Symptom of Misadjustment: If V. shift is incorrect, vertical position of image on the screen may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

Note:

1. Enter the Service mode. (See Page 1-4-2)
   Press " 9 " button on the remote control unit and select V-P mode. (By pressing " 9 " button the display will change V-P and V-S cyclically).
2. Input Monoscope pattern.
3. Press CH ▲ / ▼ buttons on the remote control unit so that the left and right side of the Monoscope pattern are equal to each other. (90±5%

7. H. Shift Adjustment

Purpose: To obtain correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ buttons	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

Note:

1. Enter the Service mode. (See Page 1-4-2)
   Press " 8 " button on the remote control unit and select H-P mode.
2. Input Monoscope pattern.
3. Press CH ▲ / ▼ buttons on the Remote Control Unit so that the left and right side of the Monoscope pattern are equal to each other. (90±5%
4. Turn the power off and on again.

Note: If you don't have Monoscope, play test tape (FL8M).

8. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test Point	Adjustment Point	Mode	Input
---	Screen-Control	Ext.	Black Raster / White Raster
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below.	

Figure

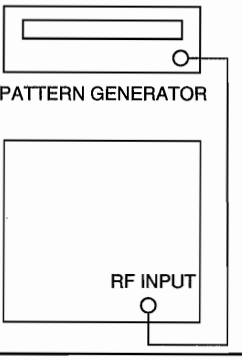


Fig. 3

Note: Screen Control FBT --- H/V CBA
F.B.T= Fly Back Transformer
Use the Remote Control Unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Set the screen control to minimum position. Input the Black raster signal from RF input.
3. Enter the Service Mode. Dimmed horizontal line appears on the CRT. (See page 1-4-2)
4. Press the " VOL ▲ / ▼ " button. (By pressing VOL ▲ / ▼ the display will change CUT OFF/DRIVE, VCO adjustment, Analog OSD adjustment cyclically).
5. Choose CUT OFF/DRIVE mode then press " 1 " button. This adjustment mode is CUT OFF (R).
6. Press the " CH ▲ / ▼ " button until the horizontal line becomes white.
7. Choose CUT OFF/DRIVE mode then press " 2 " button. This adjustment mode is CUT OFF (G). Press" CH ▲ / ▼ " until the horizontal line becomes white.
8. Choose CUT OFF/DRIVE mode then press " 3 " button. This adjustment mode is CUT OFF (G). Press" CH ▲ / ▼ " until the horizontal line becomes white.
9. Input the White Raster Signal from Video In.
10. Choose CUT OFF/DRIVE mode then Press " 4 ". Adjust the RED DRIVE as need with the CH ▲ / ▼ buttons.
11. Choose CUT OFF/DRIVE mode then Press " 5 ". Adjust the BLUE DRIVE as needed with the CH ▲ / ▼ buttons.
12. Turn the power off and on again.

9. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ buttons	---	SYMPTE 7.5 IRE
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below	
Figure			

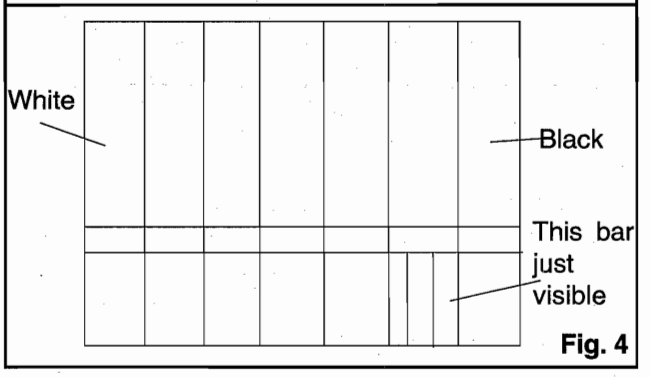


Fig. 4

Note: SYMPTE Setup level --- 7 IRE

1. Enter the Service Mode. (See page 1-4-2) Then input SYMPTE signal from RF input.
2. Press MENU button. (By pressing MENU button the display will change B R T, C N T, T N T, V-T and SHP cyclically). Select BRT and press CH ▲ / ▼ buttons so that the bar is just visible (See above figure).
3. Turn the power off and on again.

10. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test Point	Adjustment Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Note: Focus VR (FBT) --- H/V CBA

FBT= Fly Back Transformer

1. Operate the unit more than 30 minutes
2. Face the unit to the East and Degauss the CRT using a Degaussing Coil.
3. Input the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain clear picture.

11. Head Switching Position Adjustment

Purpose: Determine the Head Switching Point during Play back.

Symptom of Misadjustment: May cause Head Switching Noise or Vertical Jitter in the picture.

Note: Unit reads Head Switching Position automatically and displays it on the screen (Upper Left Corner).

1. Playback test tape (FL8N).
2. Enter the Service Mode. (See page 1-4-2)
   Then press the number 5 button on the remote control unit.
3. The Head Switching position will display on the screen, If adjustment is necessary Follow Step 4. 6.5H(412.7μs) is preferable.
4. Press " CH ▲ " or " CH ▼ " button on the Remote Control Unit if necessary the Value will be changed in 0.5H step up or down. Adjustable Range is up to 9.5H. If the value is beyond adjustable range, the display will change as:
   Lower out of range; 0.0H
   Upper out of range; -.-H
5. Turn the power off and on again.

12. SIF Adjustment

Purpose: To set the SIF (Sound Intermediate Frequency).

Symptom of Misadjustment: Audio may not sound correctly.

Note: This adjustment automatically done by the chrominance IC (IC 301).

13. CCS Text Box Location

When replacing the CRT, the CCS Box might not stay in appropriate position. Then, replace micro computer.

Note: This adjustment automatically done by the microcomputer.

The following 2 adjustments normally are not attempted in the field. They should be done only when replacing the CRT then adjust as a preparation.

14. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	Red Color
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	
Figure			

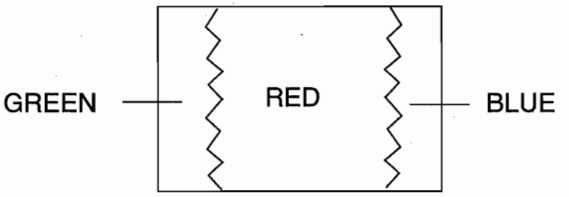


Fig. 5

1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Set the unit to the AUX Mode which is located before CH2 then input a red raster from video in.
5. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 6)
6. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 5,6)
7. Slowly push the Deflection Yoke toward the bell of the CRT and set it where a uniform red field is obtained.
8. Tighten the clamp screw on the Deflection Yoke.

15. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adjustment Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Figures

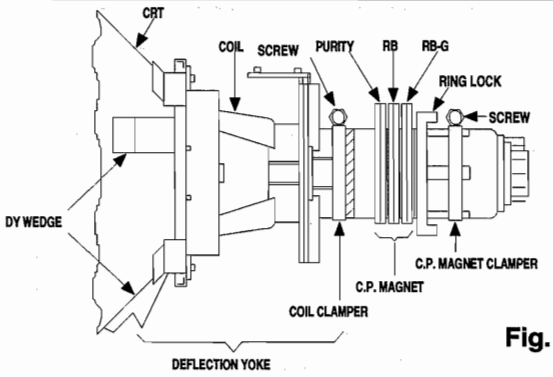


Fig. 6

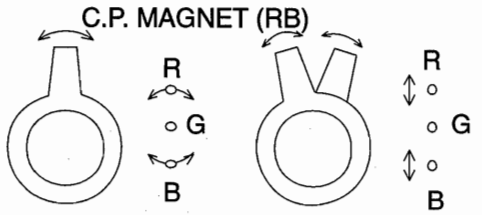


Fig. 7

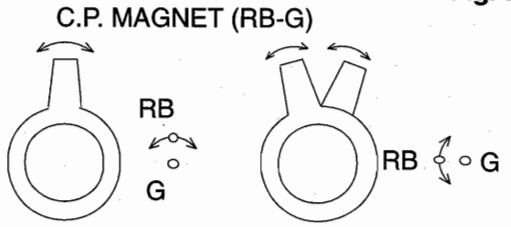
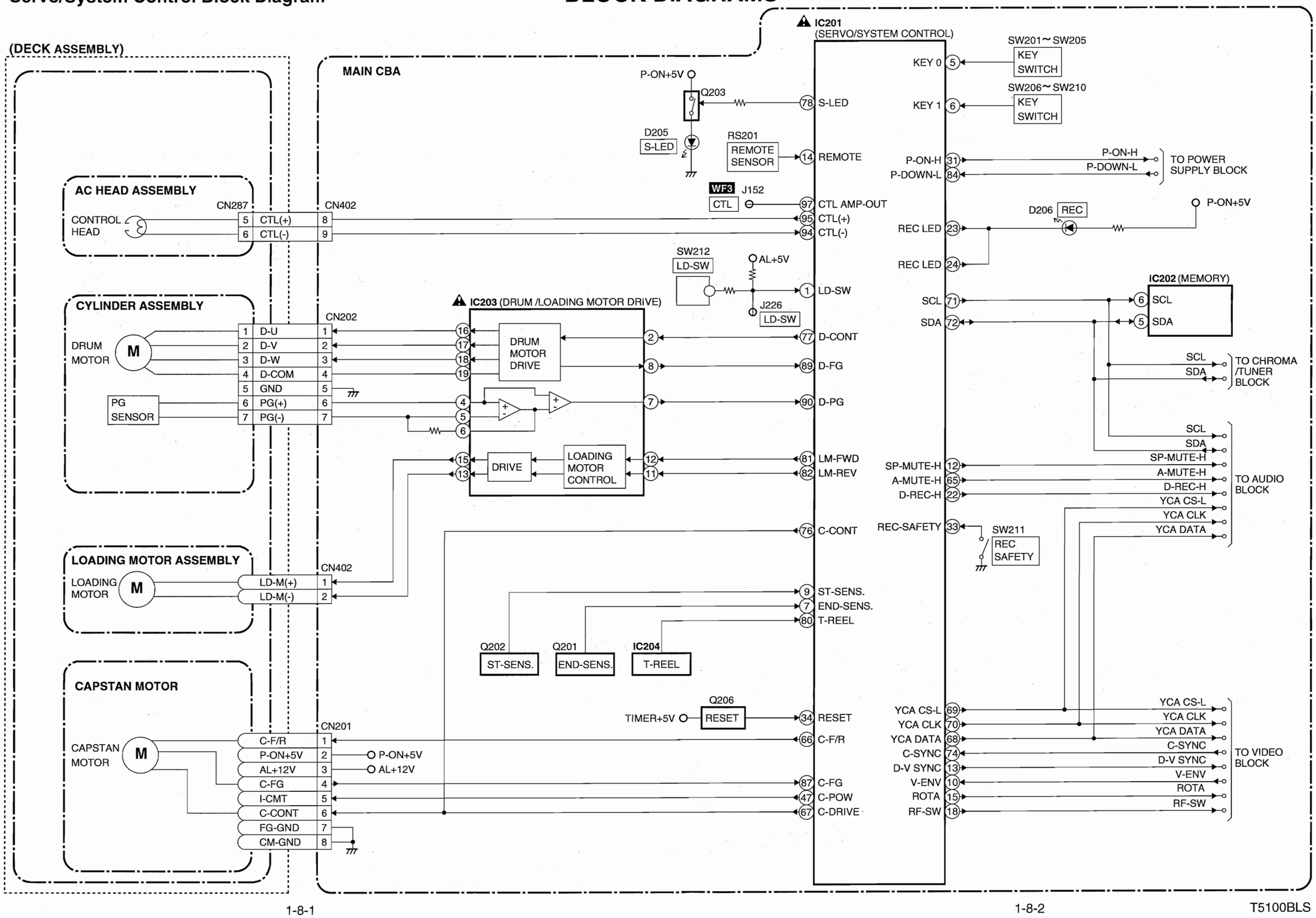


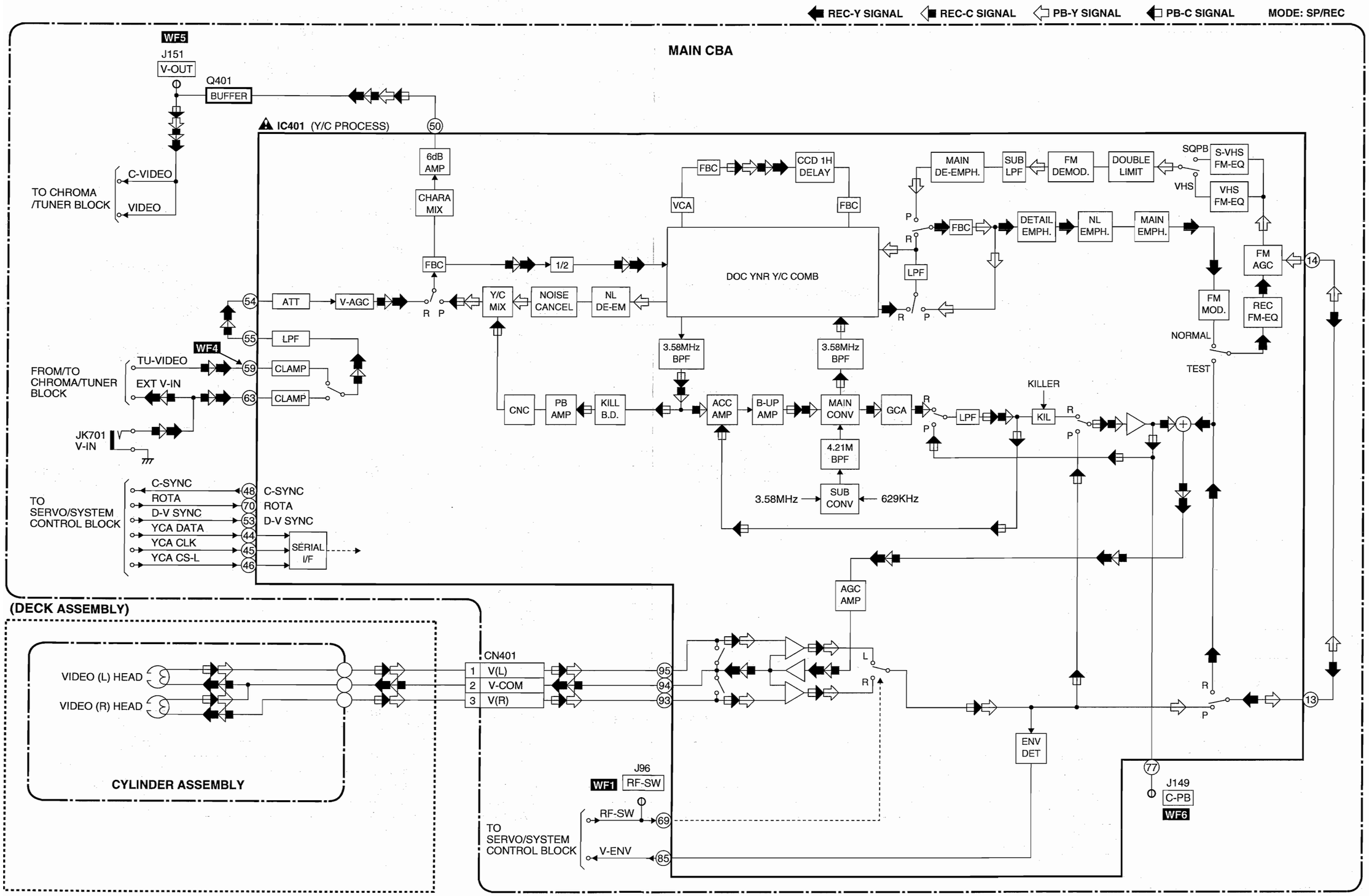
Fig. 8

1. Set the unit to the AUX Mode which is located before CH2 then input a Dot or crosshatch pattern.
2. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 7)
3. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 8)
4. Fix the C.P. Magnets by tightening the Ring Lock.
5. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
6. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

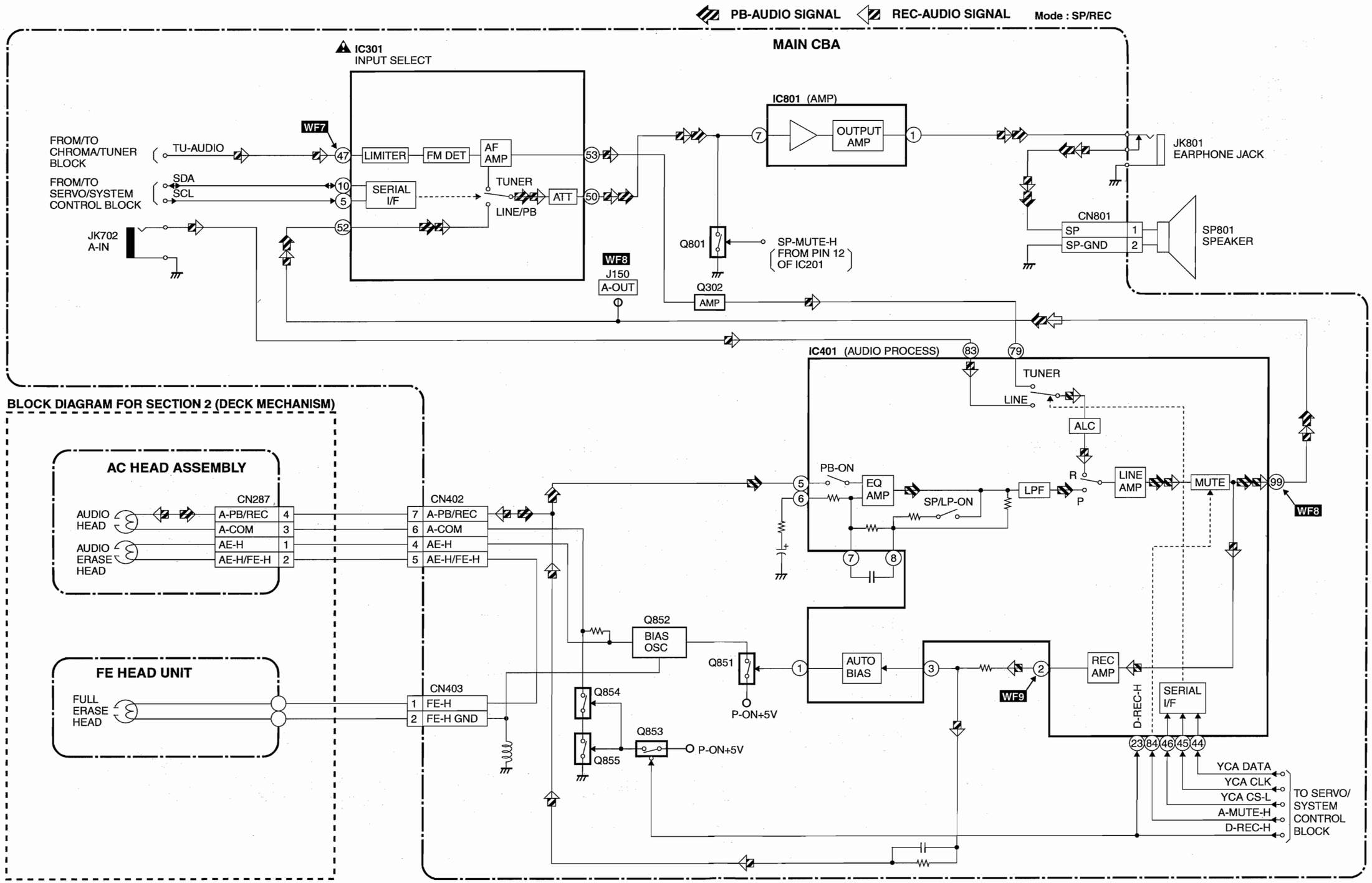
Servo/System Control Block Diagram



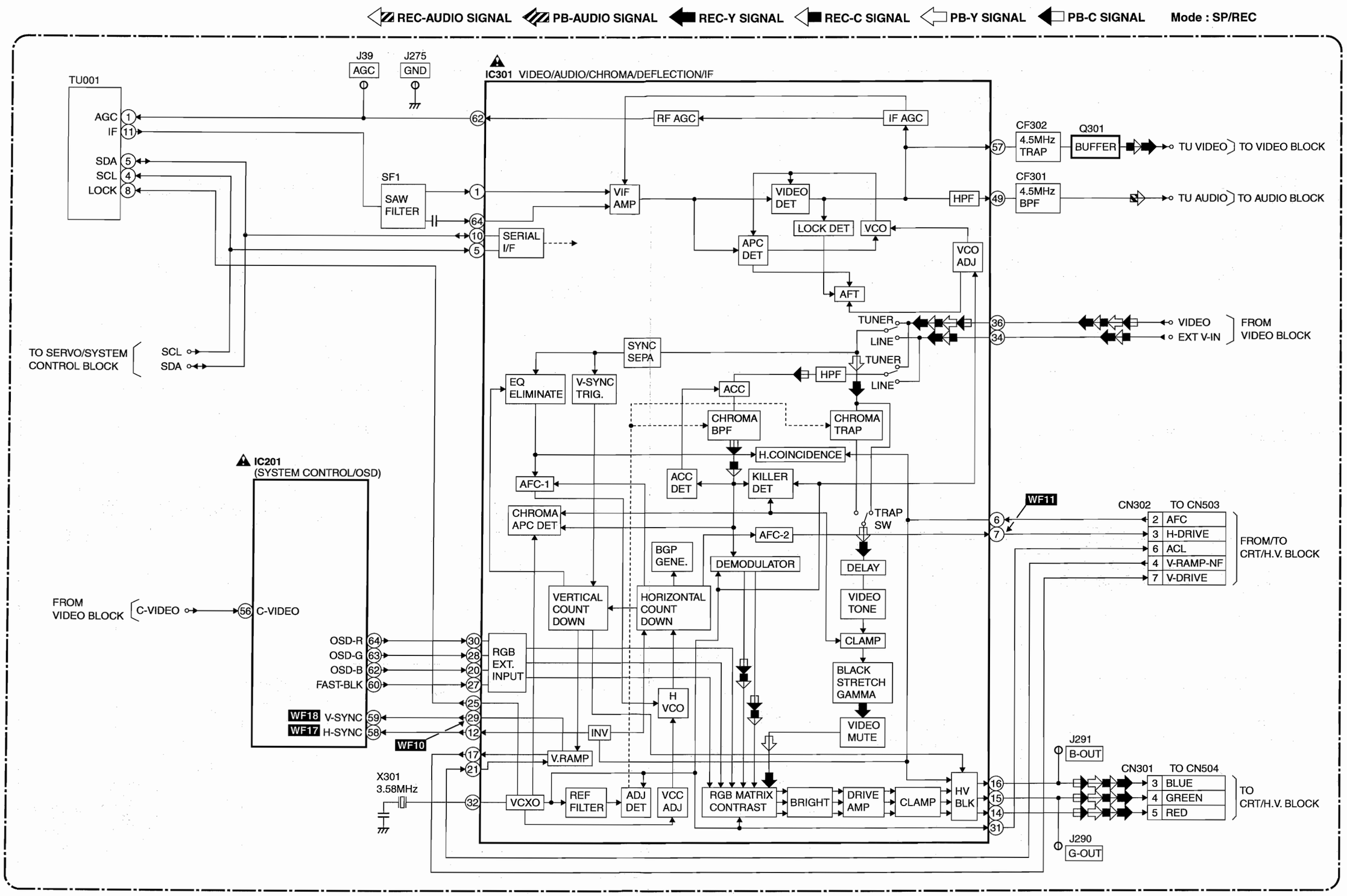
Video Block Diagram



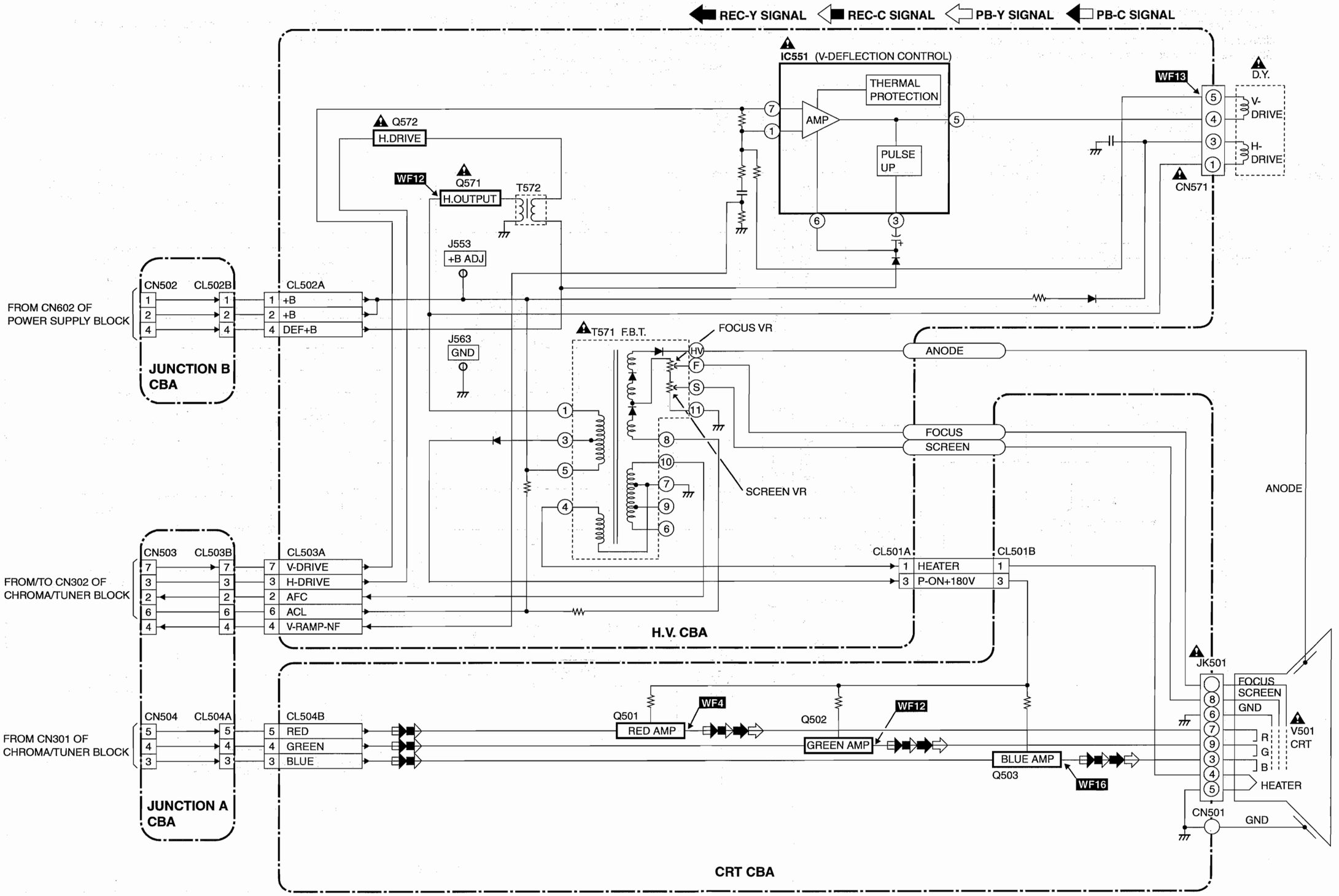
Audio Block Diagram



Chroma/Tuner Block Diagram



CRT/H.V. Block Diagram



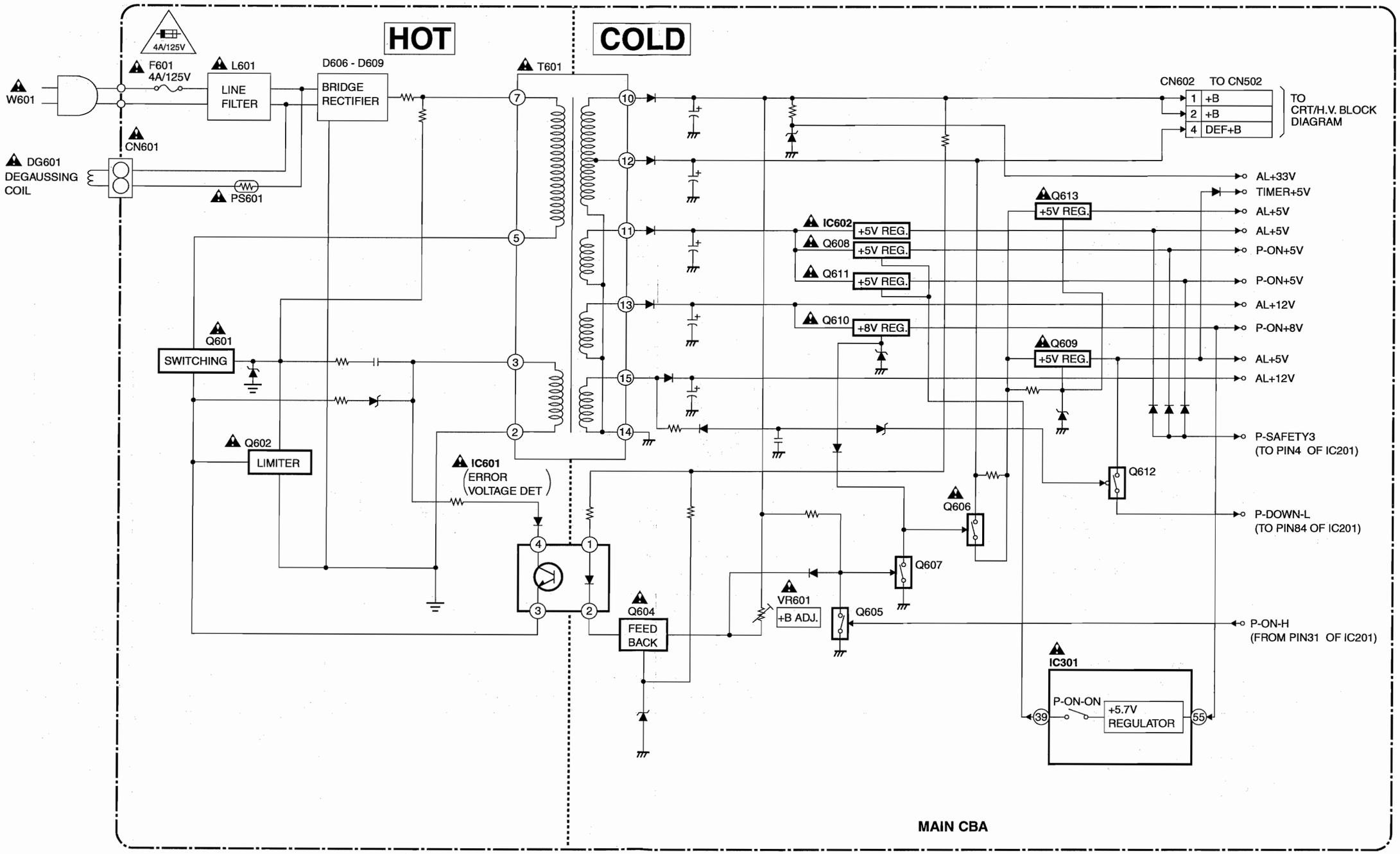
Power Supply Block Diagram

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

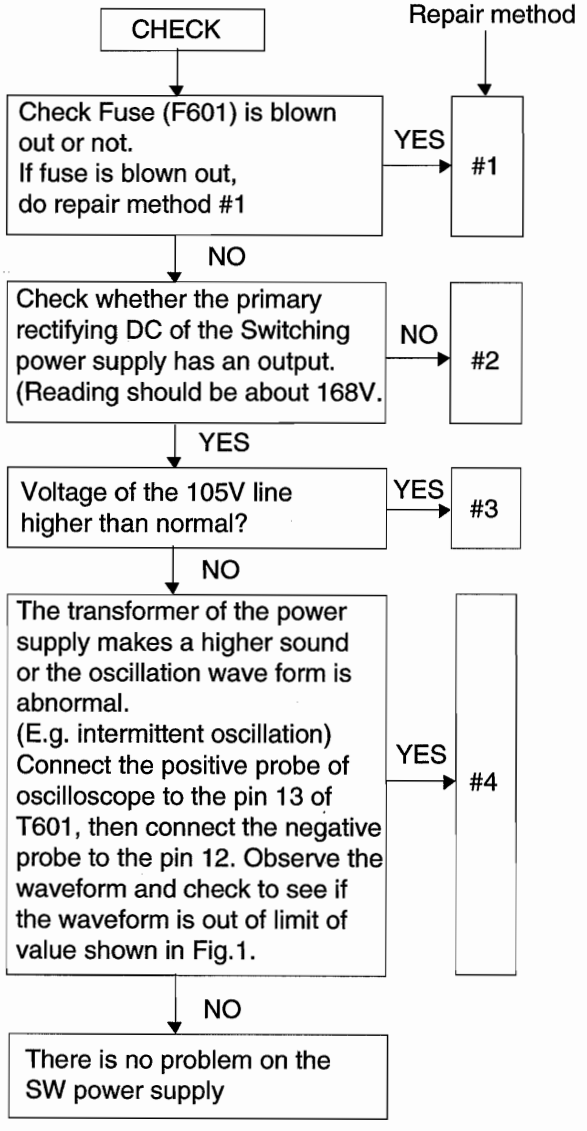
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole reprèsente un fusible à fusion rapide."

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!


CHECK
Repair method
Check Fuse (F601) is blown out or not.
If fuse is blown out, do repair method #1
YES
#1
NO
Check whether the primary rectifying DC of the Switching power supply has an output. (Reading should be about 168V.
NO
#2
YES
Voltage of the 105V line higher than normal?
YES
#3
NO
The transformer of the power supply makes a higher sound or the oscillation wave form is abnormal.
(E.g. intermittent oscillation)
Connect the positive probe of oscilloscope to the pin 13 of T601, then connect the negative probe to the pin 12. Observe the waveform and check to see if the waveform is out of limit of value shown in Fig.1.
YES
#4
NO
There is no problem on the SW power supply

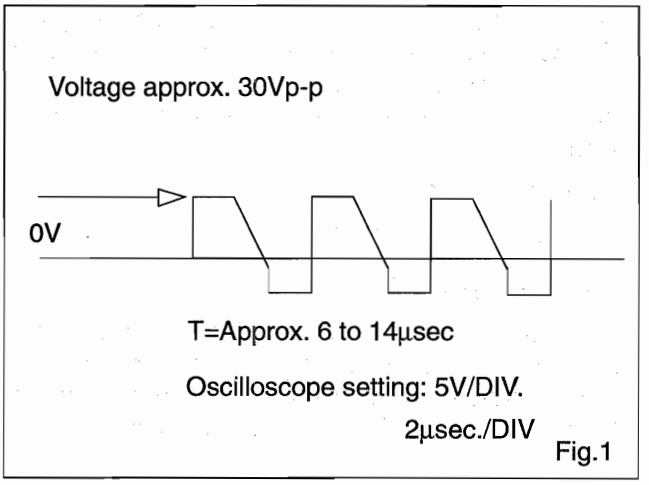


Fig.1

Repair method #1

(Power must be off)

Short circuit in the secondary side. check diode D613, D614, D616, D620 and D617, switching transistor (Q601), control transistor (Q602), diode and resistor replace as necessary.

Disconnect 105V diode (D613), 25V diode (D614), 8V diode (D616), 12V diode (D620, 12V diode (D617) and Check the load continuity of 105V line, 25V line, 8V line, 12V line through a tester (resistance range).

If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.

Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

2] Check for any defective parts while the secondary rectifying diodes are disconnected (D613, D614, D616, D620 and D617) perform a diode check in both forward and reverse directions through a tester.

Repair method #2

Check the primary rectifying diodes (D606-D609) as possible problems. Remove the above mentioned parts and check them. Perform check according to the step 1 and 2 of repair method #1 and check for defects following parts, then if necessary replace with factory originals..

R605 is open or not.

Q611 and D603 are short or not.

Repair method #3

The feedback circuit which is monitored by the output of D613 105V may not work and this may be regarded as a possible cause, remove IC601 (Photo Coupler), diode (D612) and transistor (Q604) check for defects.

Repair method #4

Check control circuitly which is connecting to Pin 2 and 1 of Switching Transformer T601.

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

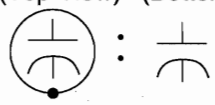
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

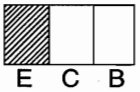
CBA Symbols

(Top View) (Bottom View)



: Electrolytic Capacitor

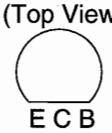
(Bottom View)



E C B

: Transistor or Digital Transistor

(Top View)



E C B

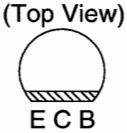
NPN Transistor

(Top View)

E C B

PNP Transistor

(Top View)



E C B

NPN Digital Transistor

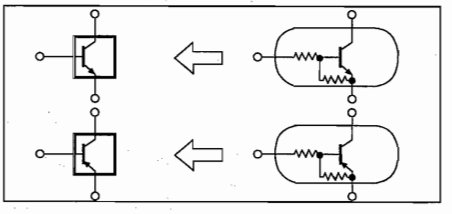
(Top View)

E C B

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

2. **CAUTION:**

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

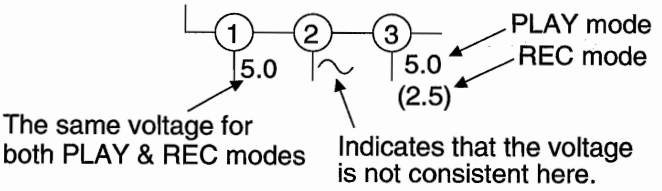
(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).

(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

7. Voltage indications for PLAY and REC modes on the schematics are as shown below:



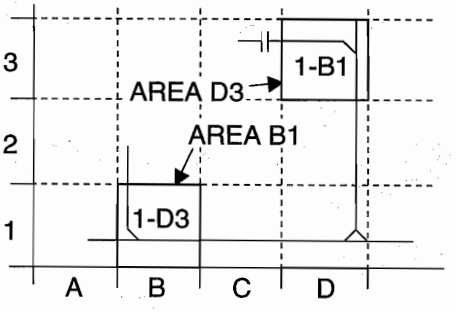
Unit: Volts

8. How to read converged lines

1-D3
Distinction Area
Line Number
(1 to 3 digits)

Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



9. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

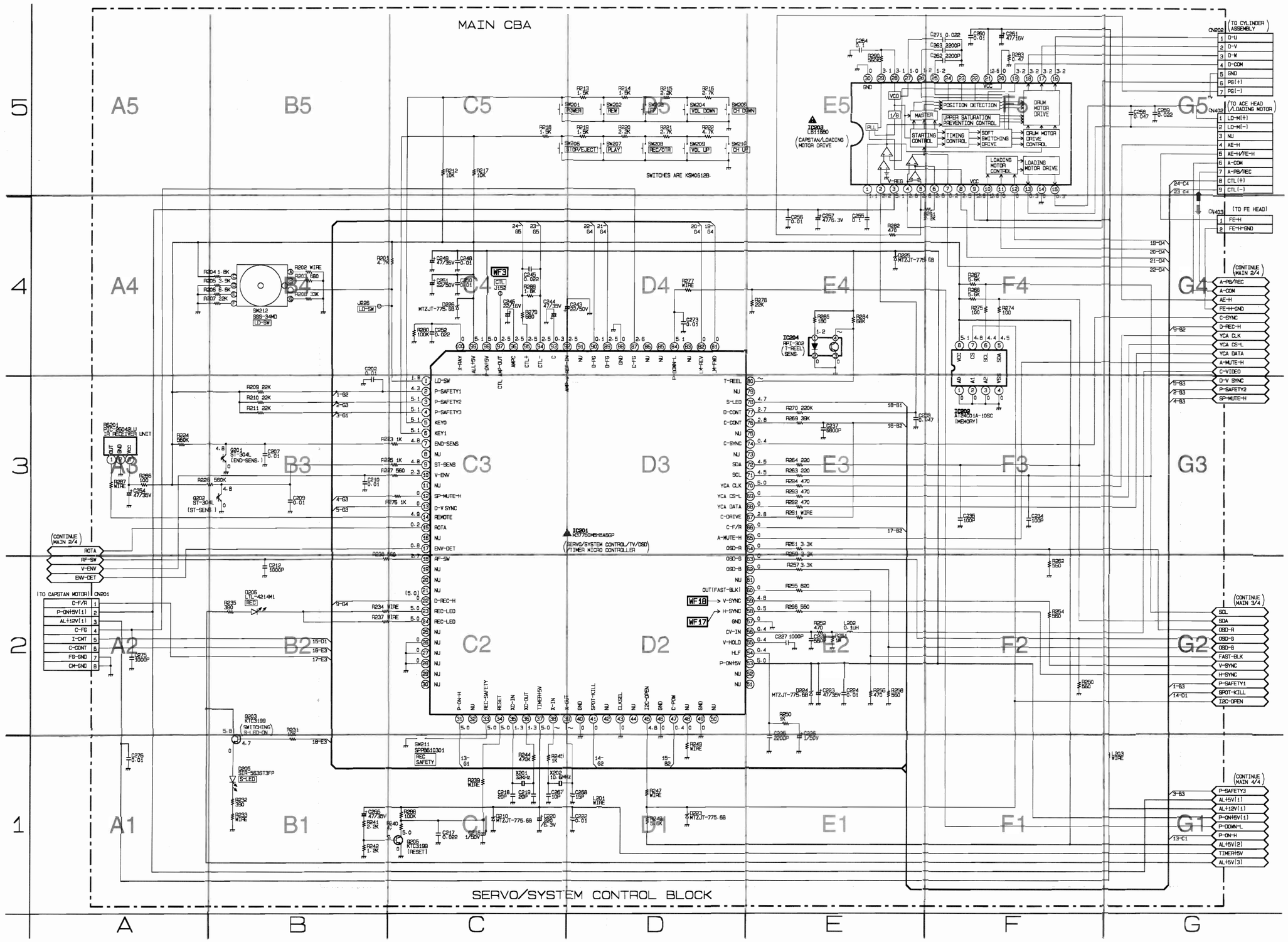
: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

Main 1/4 Schematic Diagram

Audio(REC) Audio(PLAY)



MAIN 1/4	
Ref No.	Position
ICS	
IC201	D-3
IC202	F-3
IC203	E-5
IC204	E-4
TRANSISTORS	
Q201	B-3
Q202	A-3
Q203	B-2
Q206	C-1
TEST POINTS	
J152	C-4
J226	B-4
CONNECTORS	
CN201	A-2
CN202	G-5
CN402	G-5
CN403	G-4

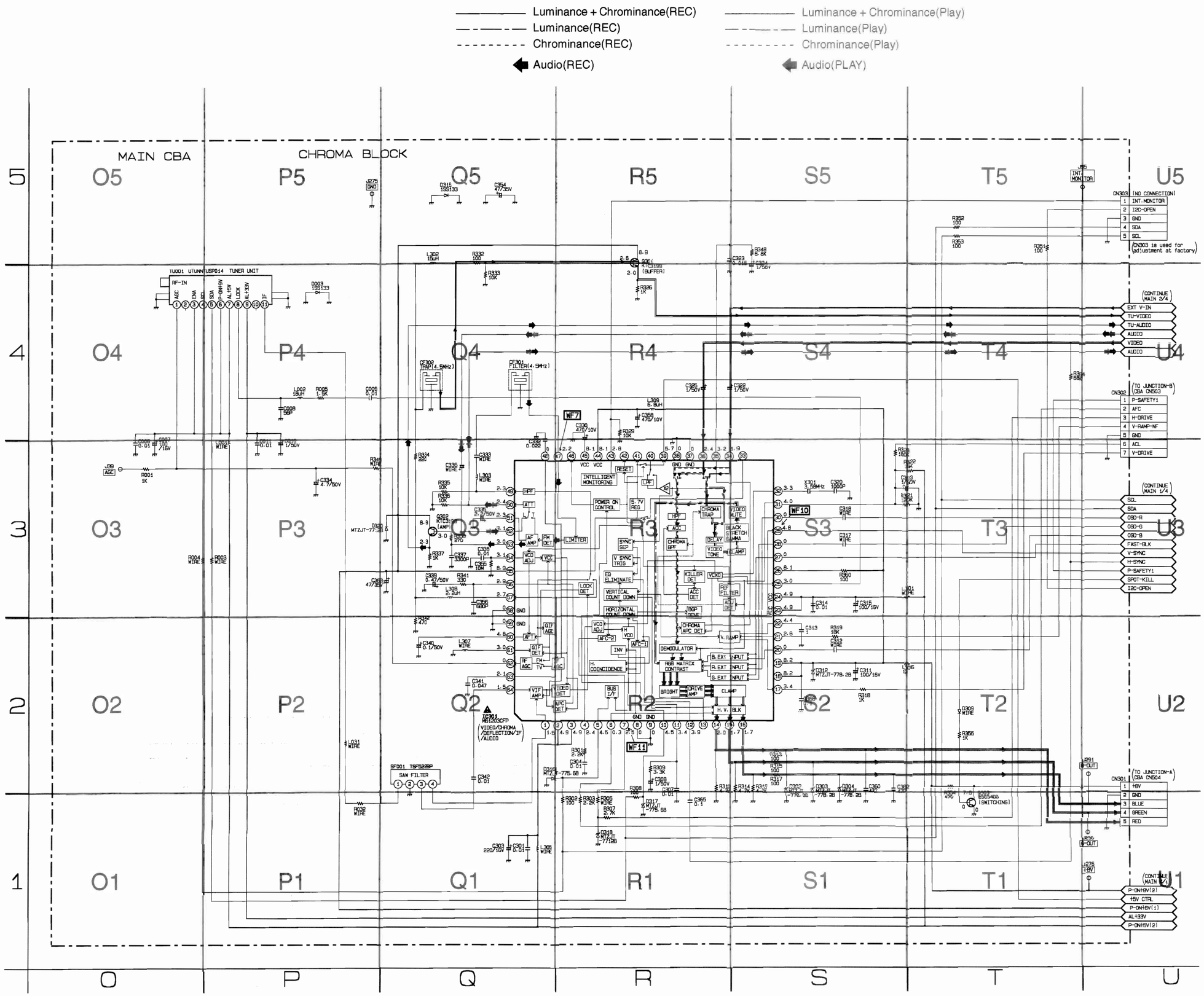
Main 2/4 Schematic Diagram

Luminance + Chrominance(REC)
Luminance(REC)
Chrominance(REC)
Audio(REC)
Luminance + Chrominance(Play)
Luminance(Play)
Chrominance(Play)
Audio(PLAY)

MAIN 2/4

Ref No.	Position
ICS	
IC401	I-2
IC801	M-4
TRANSISTORS	
Q401	L-4
Q402	L-4
Q403	L-4
Q404	L-4
Q851	I-2
Q852	I-2
Q853	I-1
Q854	I-1
Q855	I-1
Q801	N-4
TEST POINTS	
J96	K-5
J149	J-4
J150	I-3
J151	L-4
CONNECTORS	
CN401	H-4
CN801	N-3

Main 3/4 Schematic Diagram



MAIN 3/4

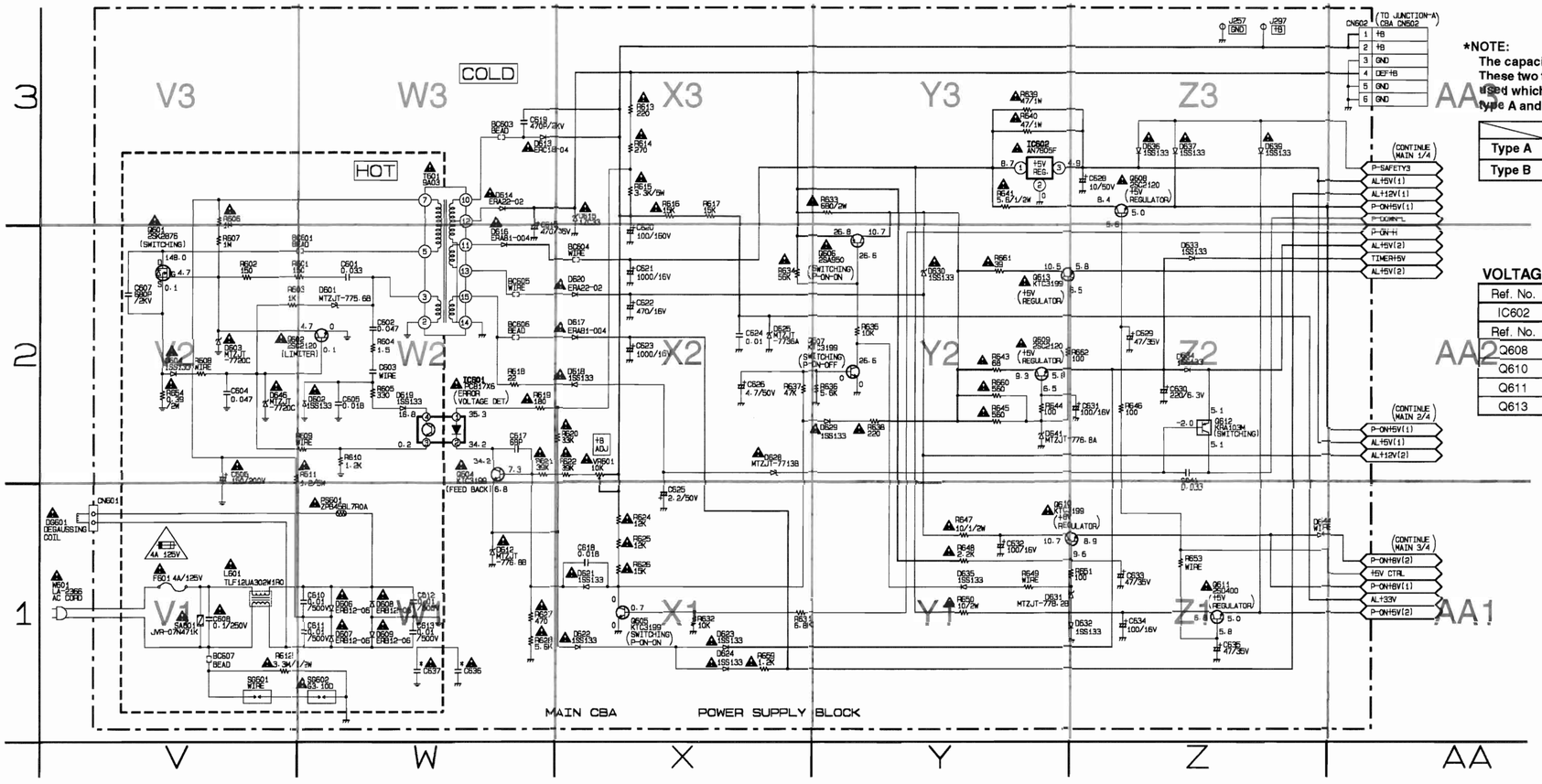
Ref No.	Position
ICS	
IC301	Q-2
TRANSISTORS	
Q301	R-5
Q302	Q-3
Q303	T-2
TEST POINTS	
J39	O-3
J95	T-5
J275	P-5
J276	U-1
J290	U-1
J291	U-2
CONNECTORS	
CN301	U-2
CN302	U-4
CN303	U-5

MAIN 4/4 Schematic Diagram

NOTE :
THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING HOT GND AS A COMMON TERMINAL.

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
4A/125V
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."



***NOTE:**
The capacitor (C636) is either type A or type B. These two types are exchangeable and can be equally used whichever the model is. The difference between type A and type B is shown the table below.

	C636	C637
Type A	4700pF	WIRE
Type B	0.01μF	0.01μF

VOLTAGE CHART (Power off mode)

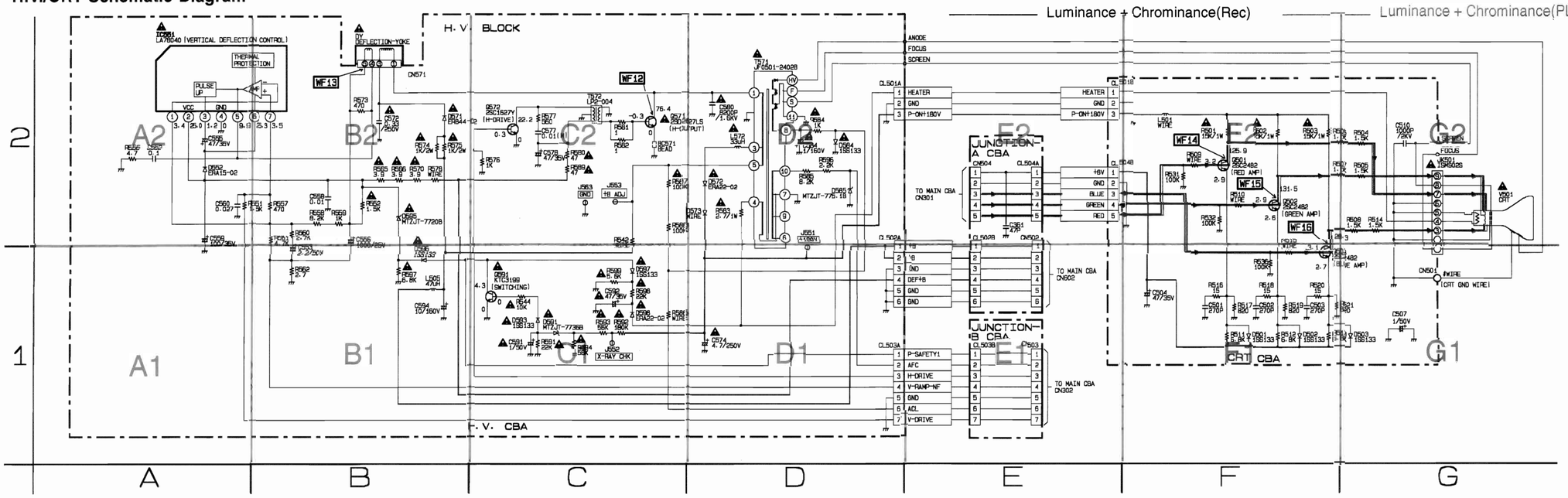
Ref. No.	1	2	3
IC602	2.0	0	3.2
Ref. No.	E	C	B
Q608	0.7	3.2	0
Q610	0.6	4.0	1.2
Q611	0.1	3.2	0.2
Q613	6.0	9.8	6.4

MAIN 4/4

Ref No.	Position
ICS	
IC601	W-2
IC602	Y-3
TRANSISTORS	
Q601	V-2
Q602	V-2
Q604	W-2
Q605	X-1
Q606	Y-2
Q607	Y-2
Q608	Z-3
Q609	Y-2
Q610	Y-1
Q611	Z-1
Q612	Z-2
Q613	Y-2
TEST POINTS	
J257	Z-3
J297	Z-3
CONNECTORS	
CN601	V-1
CN602	AA-3
ADJUSTMENT	
VR601	X-2

T5100SCM4

H.V./CRT Schematic Diagram



H.V.

Ref No.	Position
ICS	
IC551	A-2
TRANSISTORS	
Q571	C-2
Q572	C-2
Q591	C-1
TEST POINTS	
J551	D-2
J552	C-1
J553	C-2
J563	C-2
CONNECTORS	
CL501A	D-2
CL502A	D-2
CL503A	D-1
CN571	B-2

CRT

Ref No.	Position
TRANSISTORS	
Q501	F-2
Q502	F-2
Q503	F-1
CONNECTORS	
CN501	G-1
CL501B	E-2
CL504B	E-2

T5100SCHV

Main CBA Top View

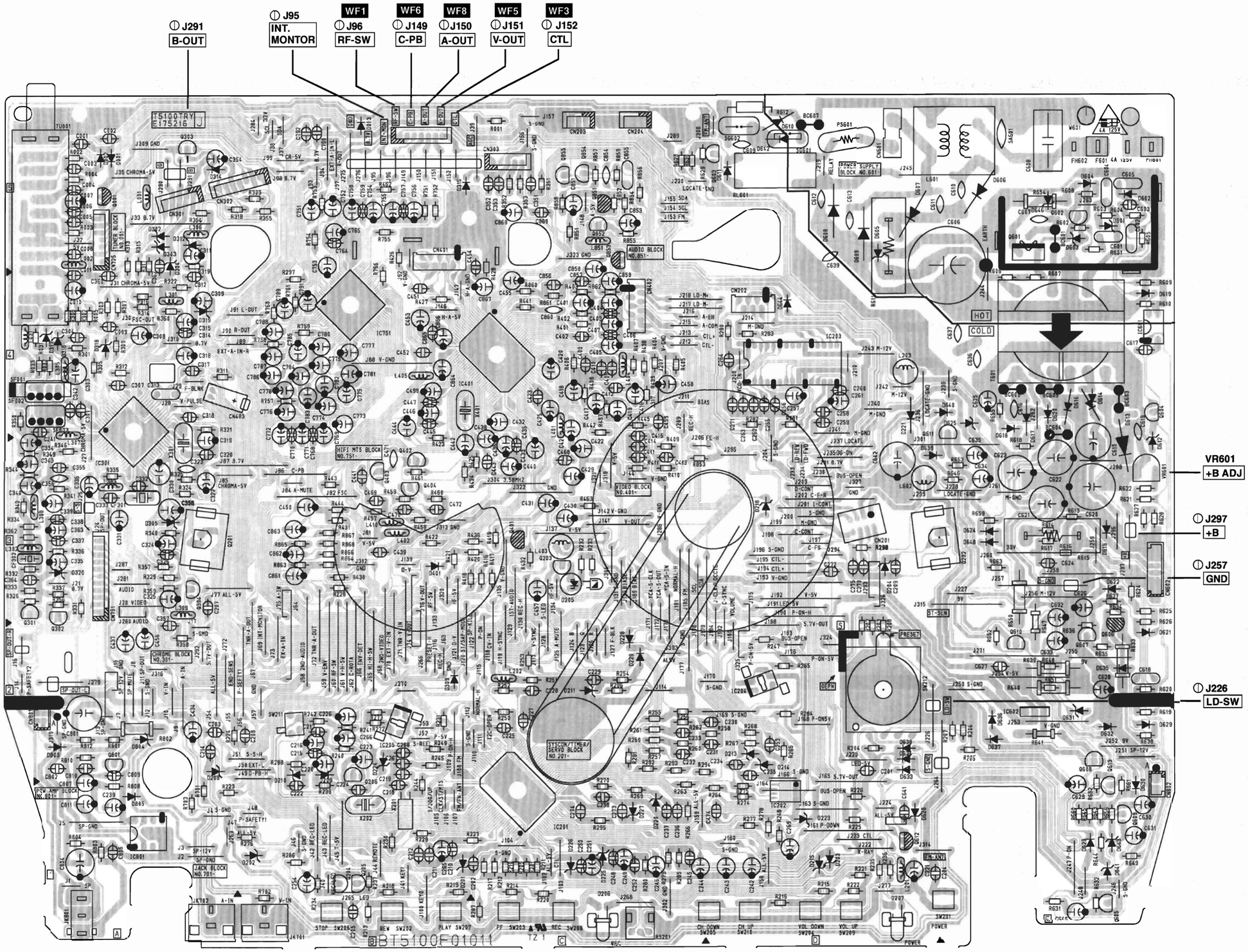
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

4A/125V

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



MAIN CBA

Ref No.	Position
ICS	
IC201	C-1
IC202	D-1
IC203	D-4
IC204	D-2
IC301	A-3
IC401	B-4
IC601	E-4
IC602	E-2
IC801	A-1
TRANSISTORS	
Q201	A-3
Q202	E-3
Q203	C-3
Q206	B-1
Q301	A-3
Q302	A-2
Q303	A-5
Q401	B-3
Q402	B-3
Q403	B-3
Q404	B-3
Q601	E-5
Q602	E-5
Q604	E-4
Q605	E-1
Q606	E-3
Q607	E-2
Q608	E-5
Q609	E-5
Q610	E-2
Q611	D-3
Q612	D-1
Q613	E-5
Q851	C-5
Q852	C-5
Q853	C-5
Q854	C-5
Q855	C-5
Q801	A-2
TEST POINTS	
J39	C-5
J95	B-5
J96	B-5
J149	B-5
J150	B-5
J151	B-5
J152	B-5
J226	D-2
J257	E-3
J275	B-5
J276	B-5
J290	A-5
J291	A-5
J297	E-3
CONNECTORS	
CN201	D-3
CN202	D-5
CN301	A-5
CN302	A-5
CN303	B-5
CN401	B-5
CN402	C-4
CN403	A-4
CN601	D-5
CN602	E-3
CN801	A-2
ADJUSTMENT	
VR601	E-3

3-091-027-12

Main CBA Bottom View

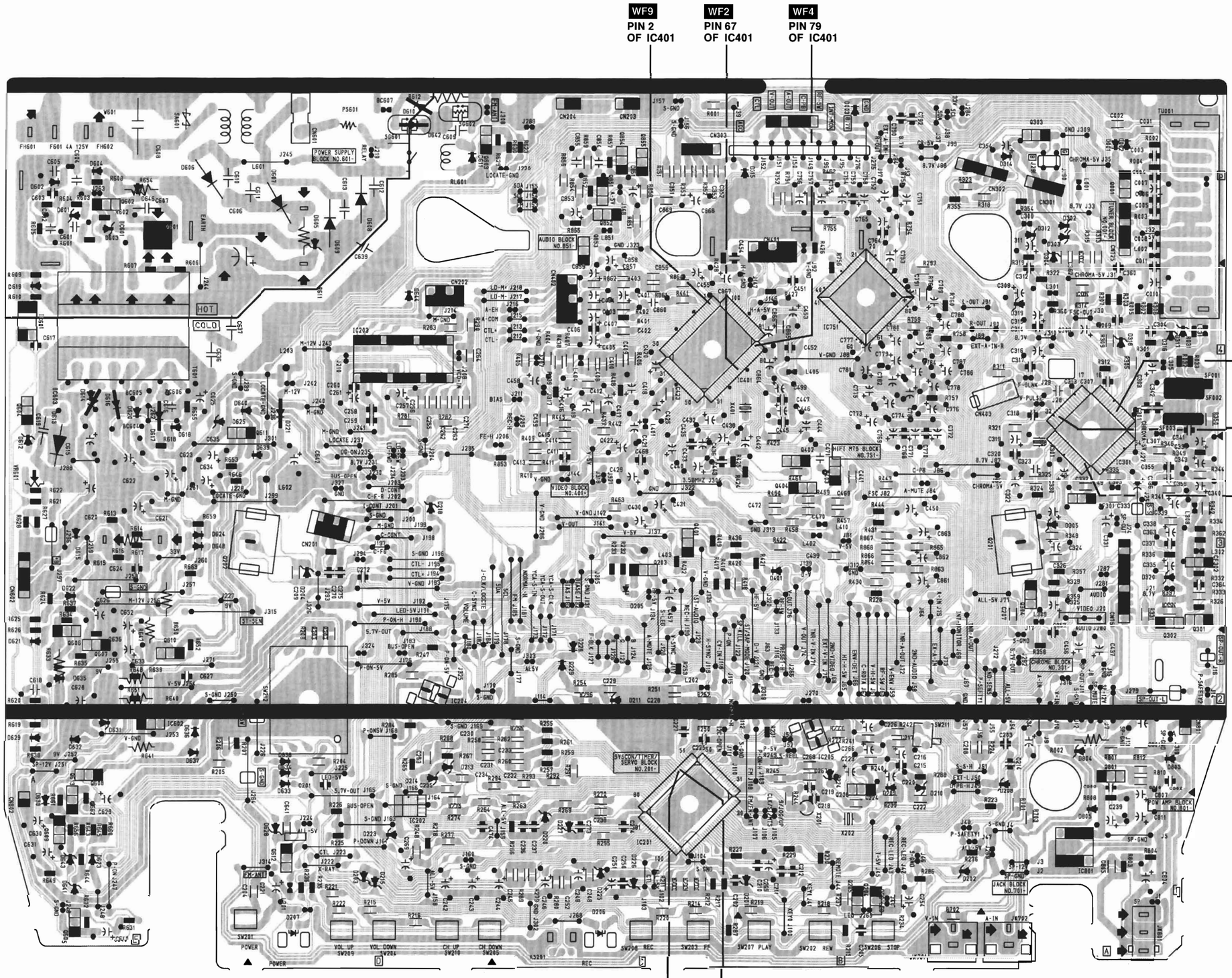
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

4A/125V

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

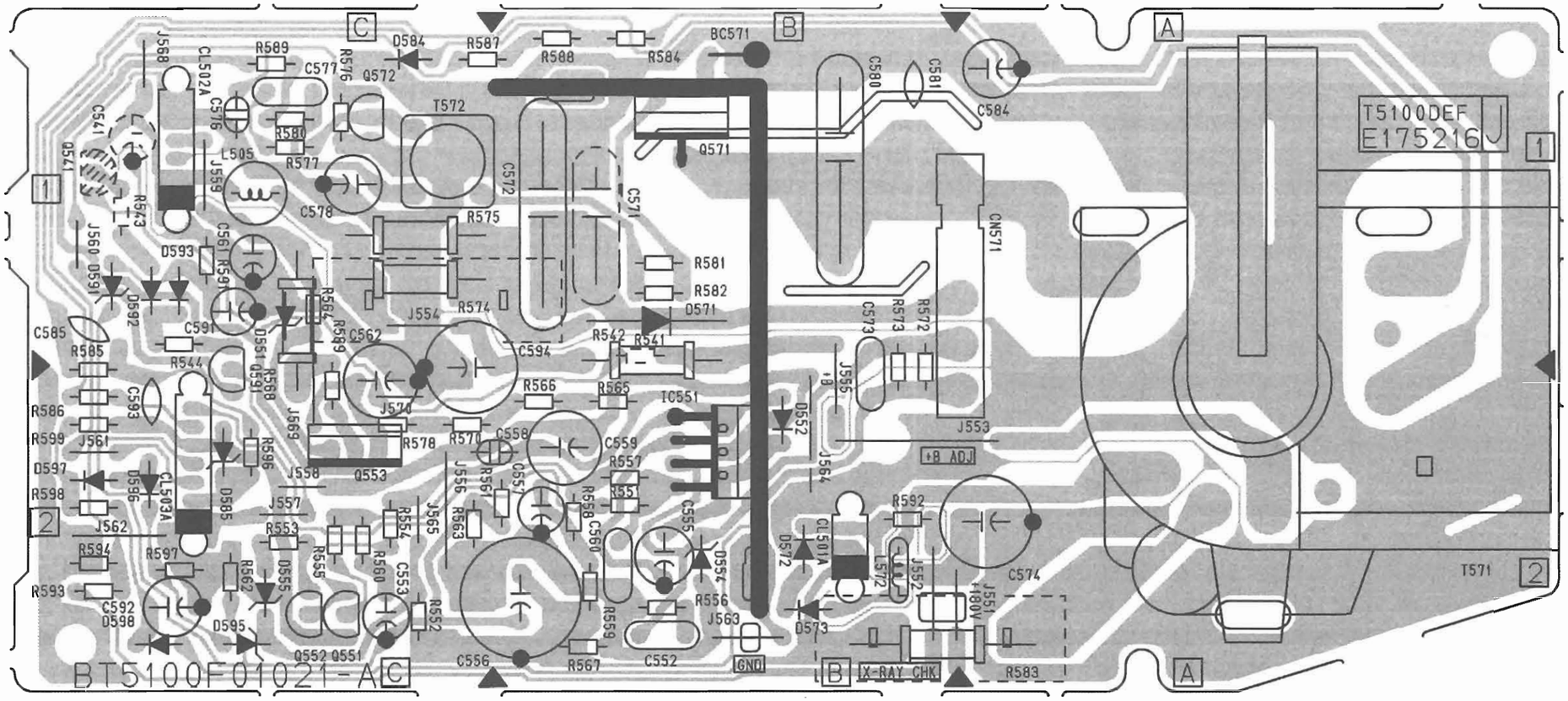
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



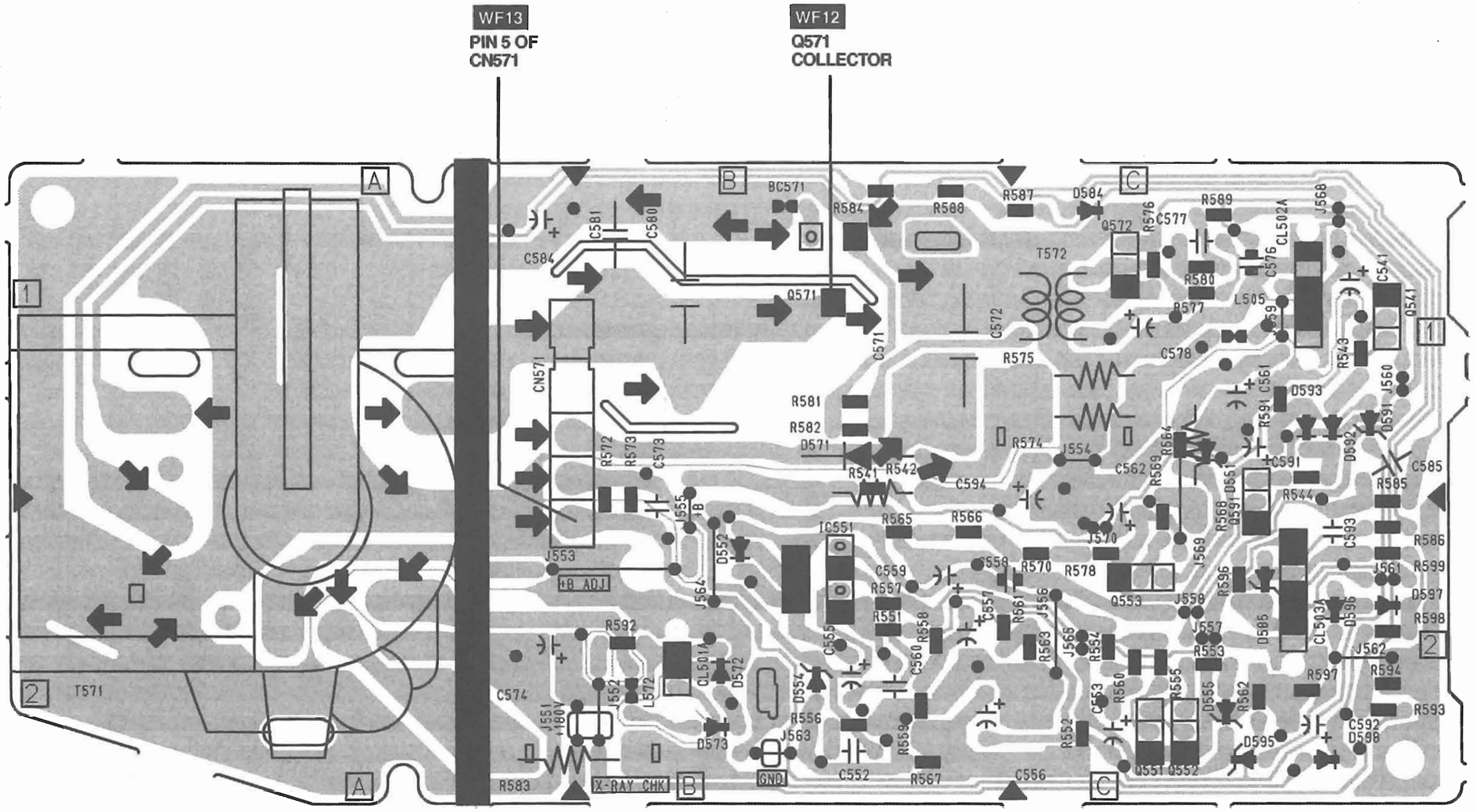
H.V. CBA Top View

H.V. CBA

Ref No.	Position
ICS	
IC551	B-2
TRANSISTORS	
Q571	B-1
Q572	C-1
Q591	C-2
TEST POINTS	
J551	B-2
J552	B-2
J553	B-2
J563	B-2
CONNECTORS	
CL501A	B-2
CL502A	C-1
CL503A	C-2
CN571	A-1



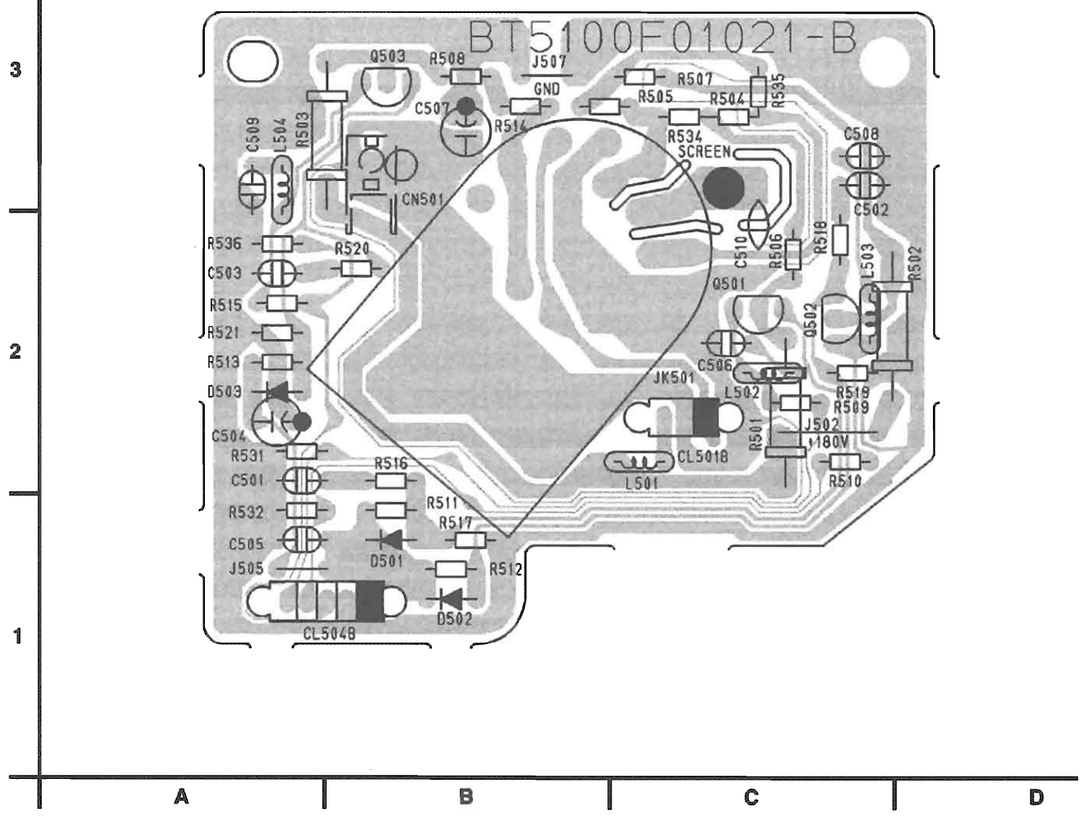
H.V. CBA Bottom View



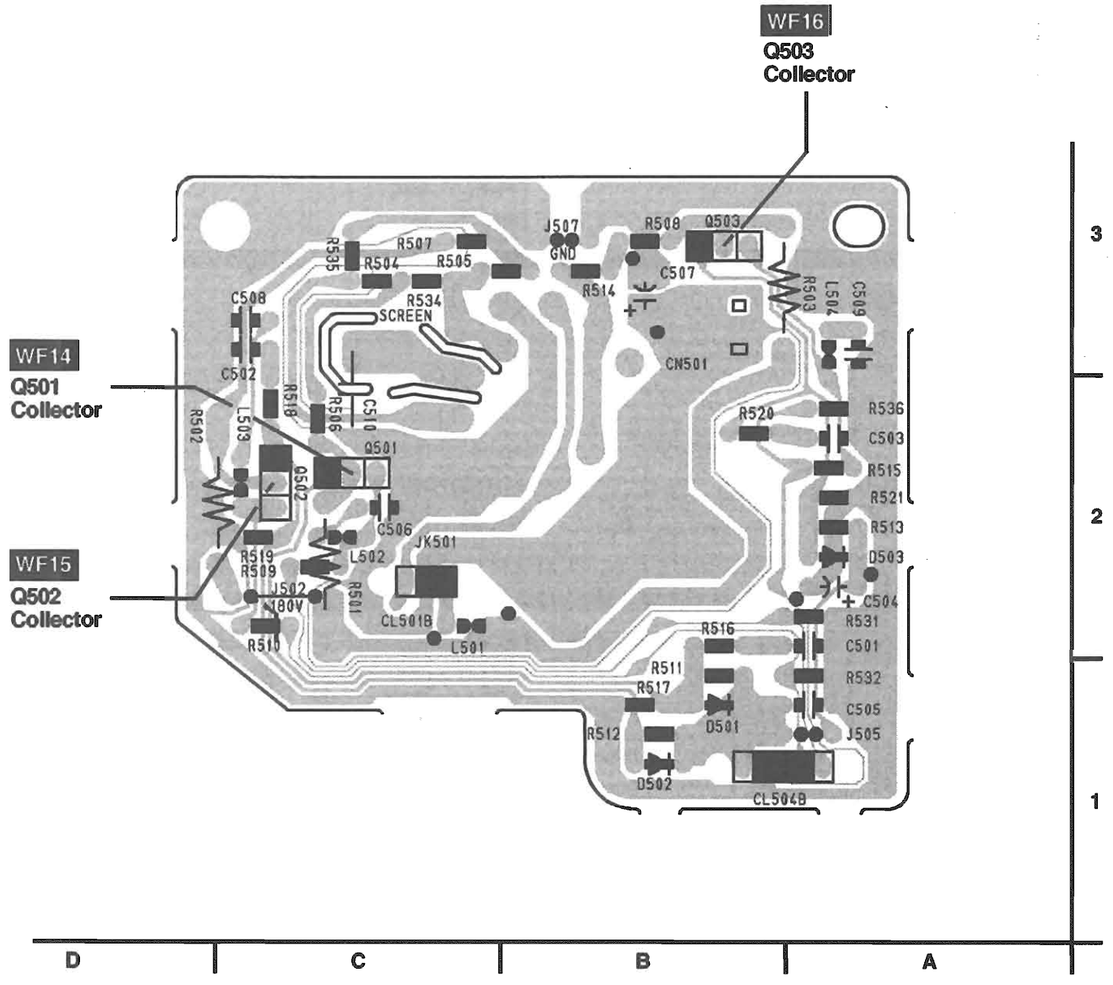
CRT CBA Top View

CRT CBA

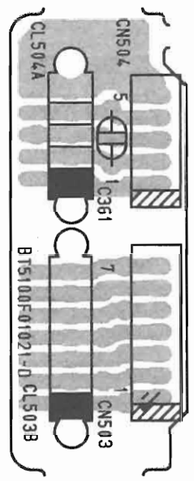
Ref No.	Position
TRANSISTORS	
Q501	C-2
Q502	C-2
Q503	B-2
CONNECTORS	
CN501	A-2
CL501B	C-2
CL504B	A-1



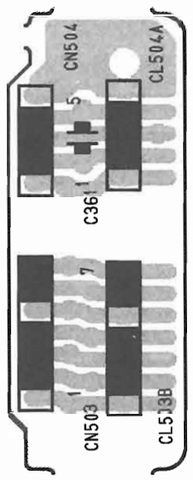
CRT CBA Bottom View



Junction A CBA Top View

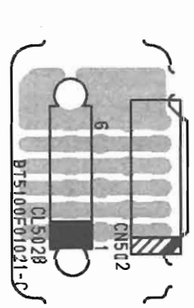


Junction A CBA Bottom View

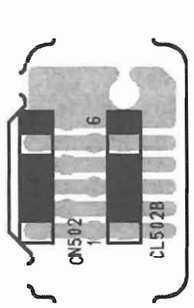


BT5100F01021-D

Junction B CBA Top View



Junction B CBA Bottom View



BT5100F01021-C

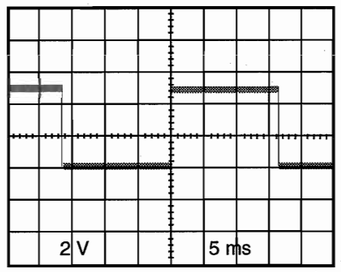
WAVEFORMS

WAVEFORM NOTES

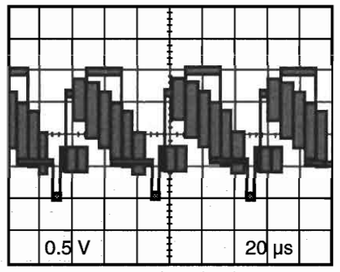
INPUT: NTSC COLOR BAR SIGNAL

OTHER CONTROLS : CENTER POSITION

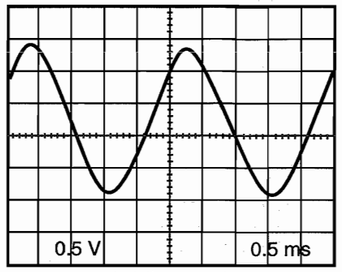
VOLTAGES SHOWN ARE RANGE OF OSCILLOSCOPE SETTING



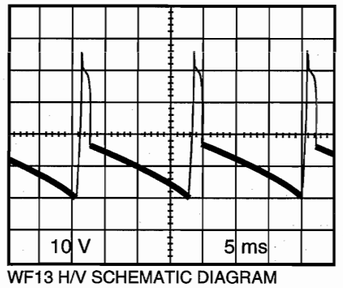
WF1 MAIN 2/4 SCHEMATIC DIAGRAM
J225 RF SW



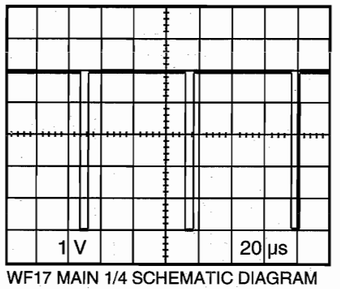
WF5 MAIN 2/4 SCHEMATIC DIAGRAM
J224 V-OUT



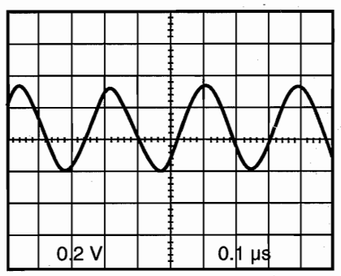
WF9 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 2



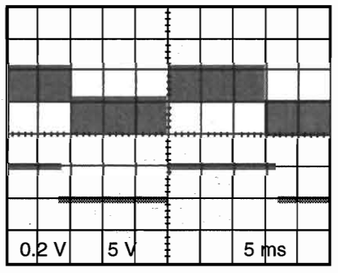
WF13 H/V SCHEMATIC DIAGRAM
CN571 PIN 5



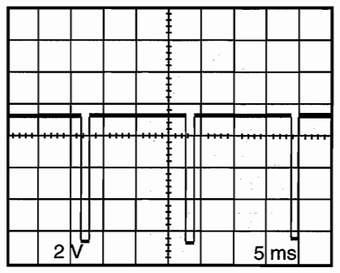
WF17 MAIN 1/4 SCHEMATIC DIAGRAM
IC201 PIN 58



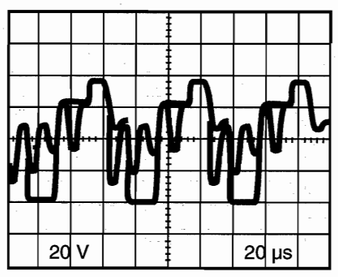
WF2 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 67



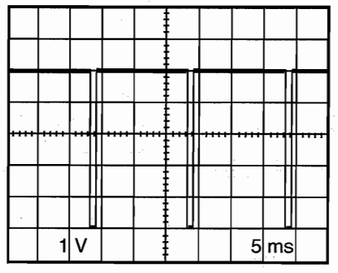
Upper: WF6 Lower: WF1
MAIN 2/4 SCHEMATIC DIAGRAM J148 V-ENV



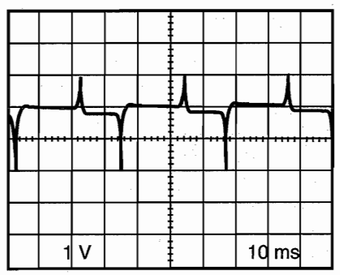
WF10 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 29



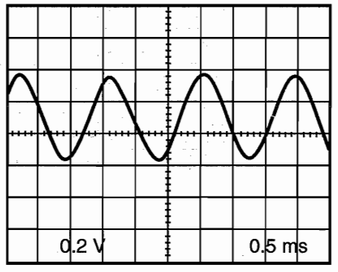
WF14 CRT SCHEMATIC DIAGRAM
Q501 COLLECTOR



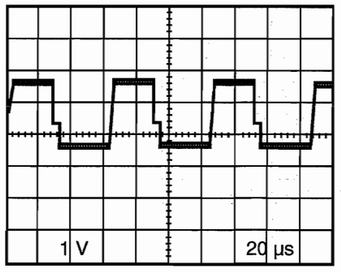
WF18 MAIN 1/4 SCHEMATIC DIAGRAM
IC201 PIN 59



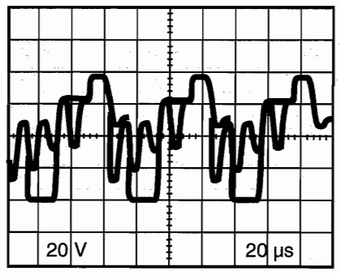
WF3 MAIN 1/4 SCHEMATIC DIAGRAM
J115 CTL



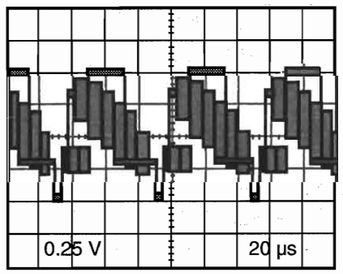
WF7 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 47



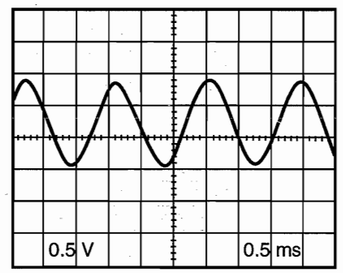
WF11 MAIN 3/4 SCHEMATIC DIAGRAM
IC301 PIN 7



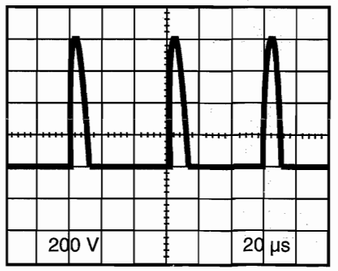
WF15 CRT SCHEMATIC DIAGRAM
Q502 COLLECTOR



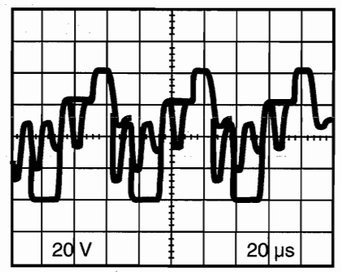
WF4 MAIN 2/4 SCHEMATIC DIAGRAM
IC401 PIN 59



WF8 MAIN 2/4 SCHEMATIC DIAGRAM
j150 A-OUT

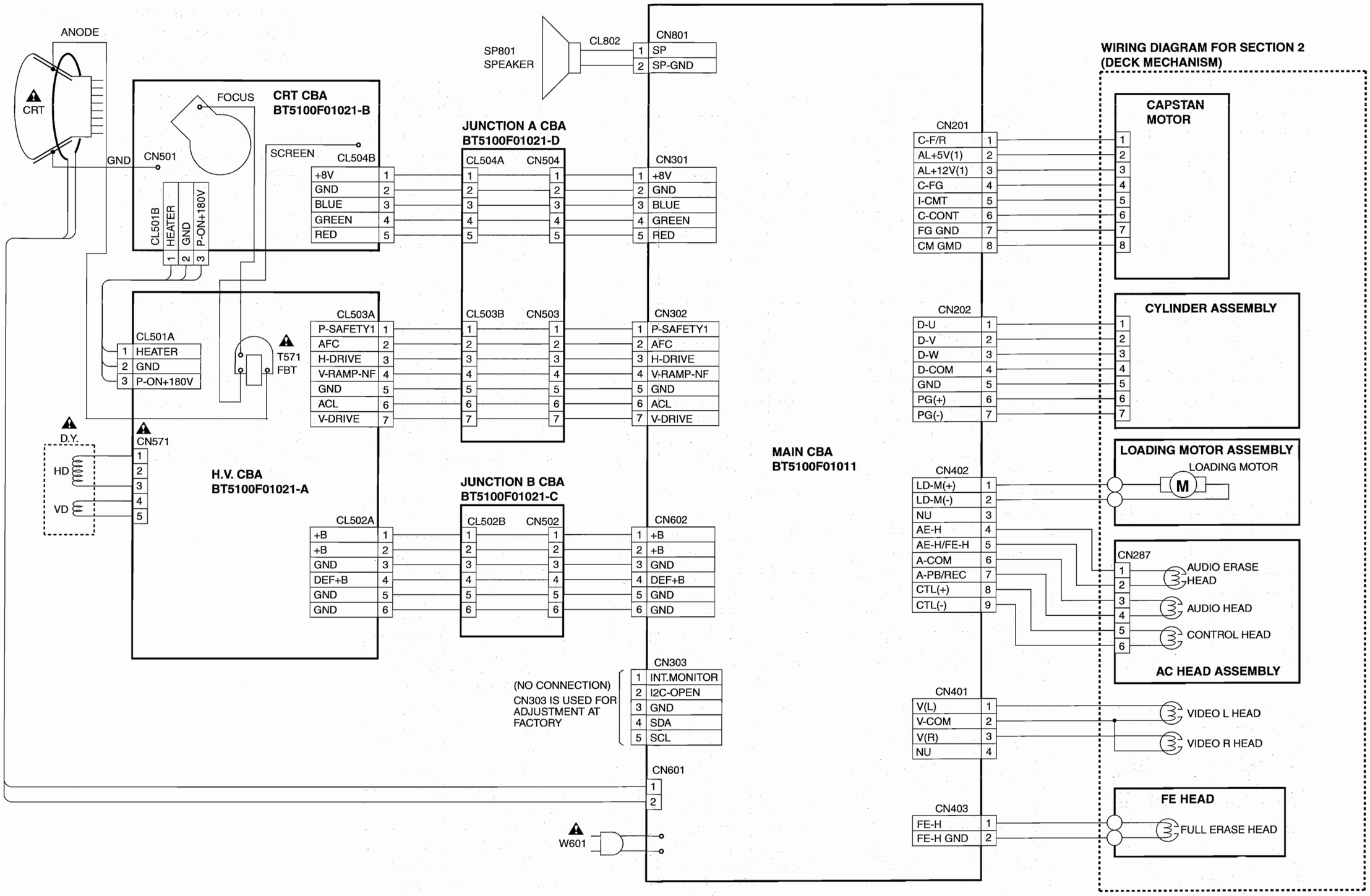


WF12 H/V SCHEMATIC DIAGRAM
Q571 COLLECTOR



WF16 CRT SCHEMATIC DIAGRAM
Q503 COLLECTOR

WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Chart 1

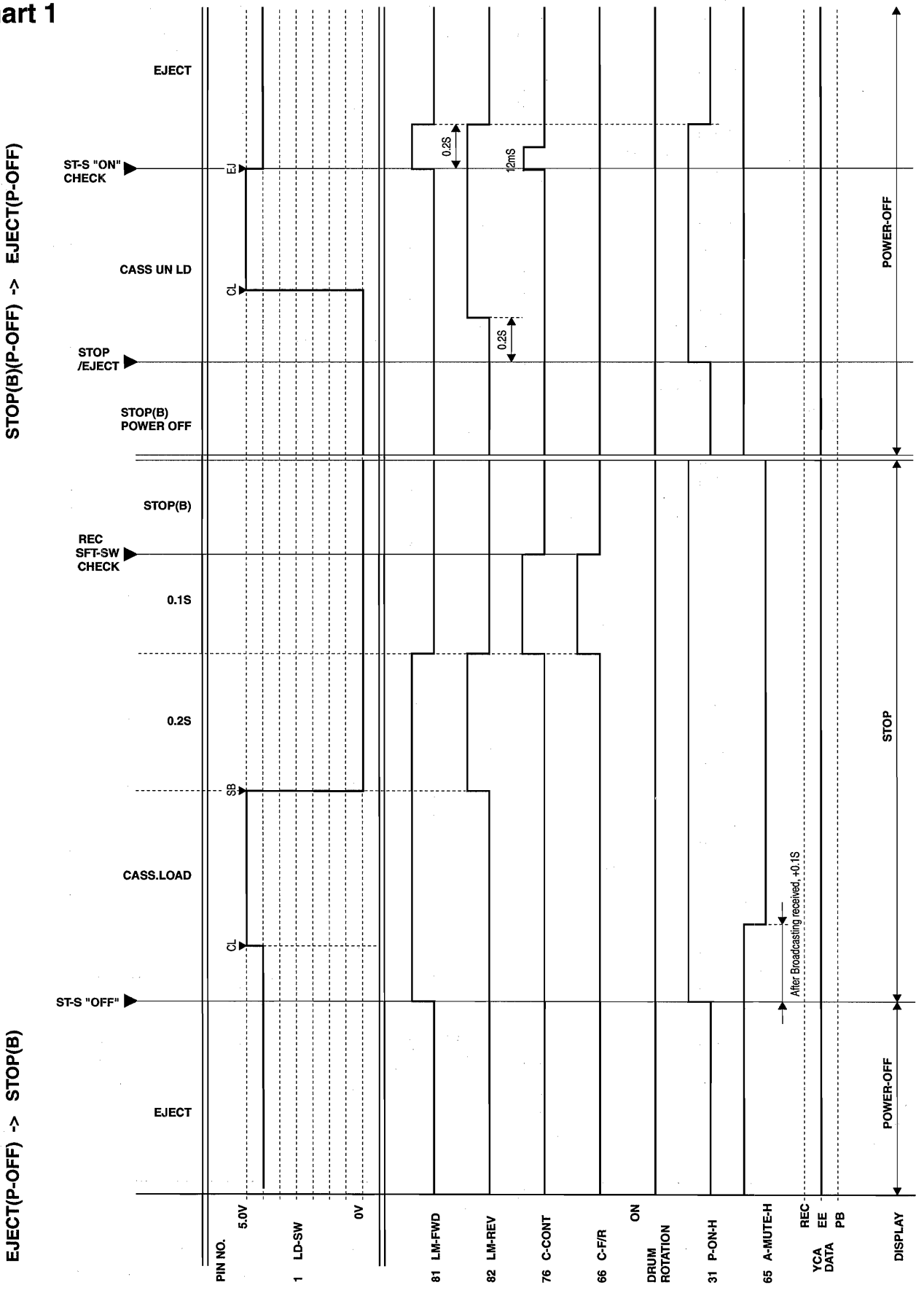


Chart 2

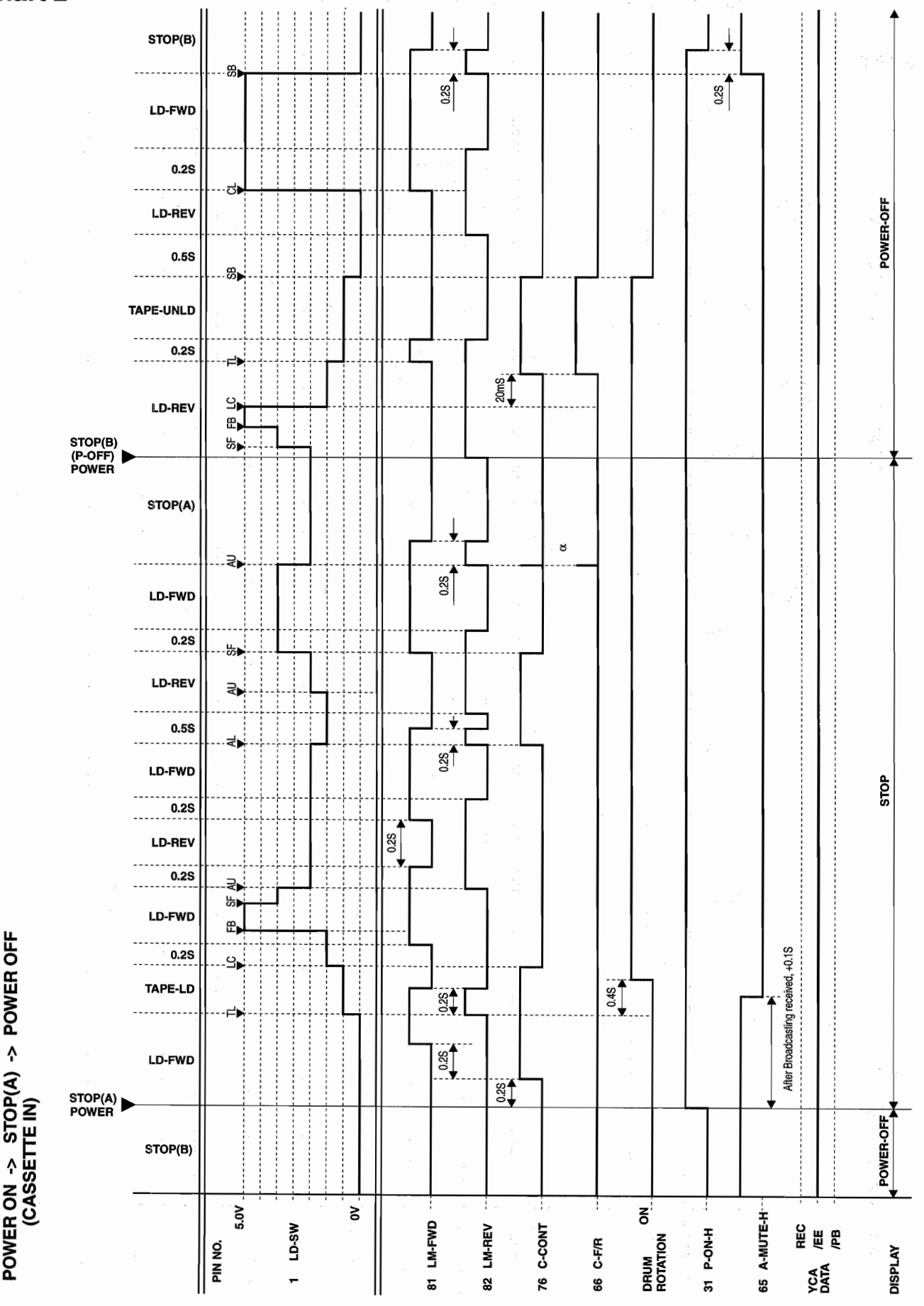

POWER ON -> STOP(A) -> POWER OFF
(CASSETTE IN)
PIN NO.
1 LD-SW
5.0V
0V
81 LM-FWD
82 LM-REV
76 C-CONT
66 C-F/R
DRUM ROTATION
ON
31 P-ON-H
65 A-MUTE-H
YCA DATA
REC /EE /PB
DISPLAY
STOP(B)
LD-FWD
0.2S
LD-REV
0.5S
TAPE-UNLD
0.2S
LD-REV
STOP(B) (P-OFF) POWER
STOP(A)
LD-FWD
0.2S
LD-REV
0.5S
LD-FWD
0.2S
LD-REV
0.2S
LD-FWD
0.2S
TAPE-LD
LD-FWD
STOP(A) POWER
STOP(B)
SB
CL
SB
TL
LC
FB
SF
AU
SF
AU
AL
TL
LC
FB
SF
AU
0.2S
0.2S
0.2S
0.2S
0.2S
0.2S
0.2S
0.2S
0.2S
20mS
α
0.4S
After Broadcasting received, +0.1S
POWER-OFF
STOP
POWER-OFF

Chart 3

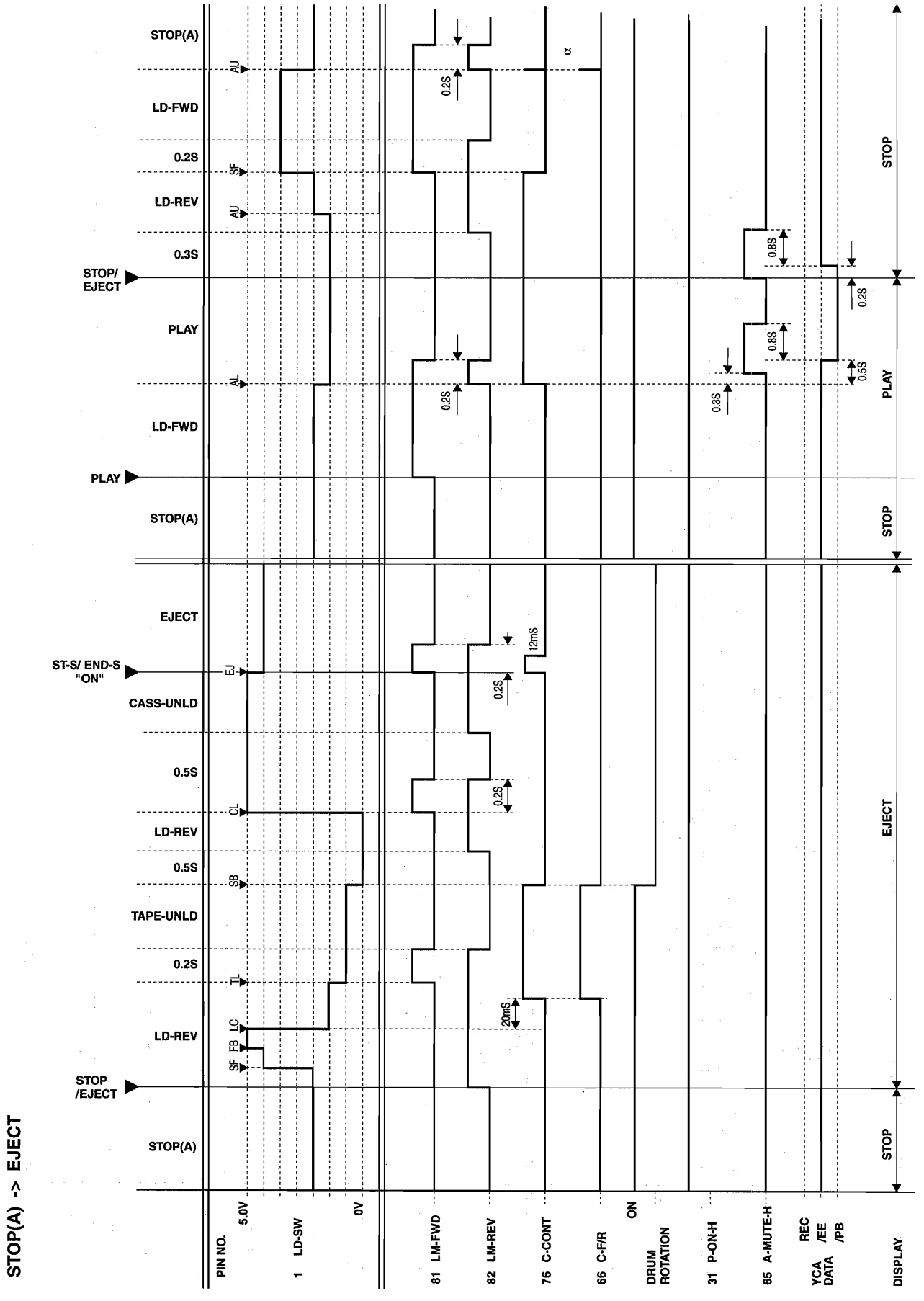
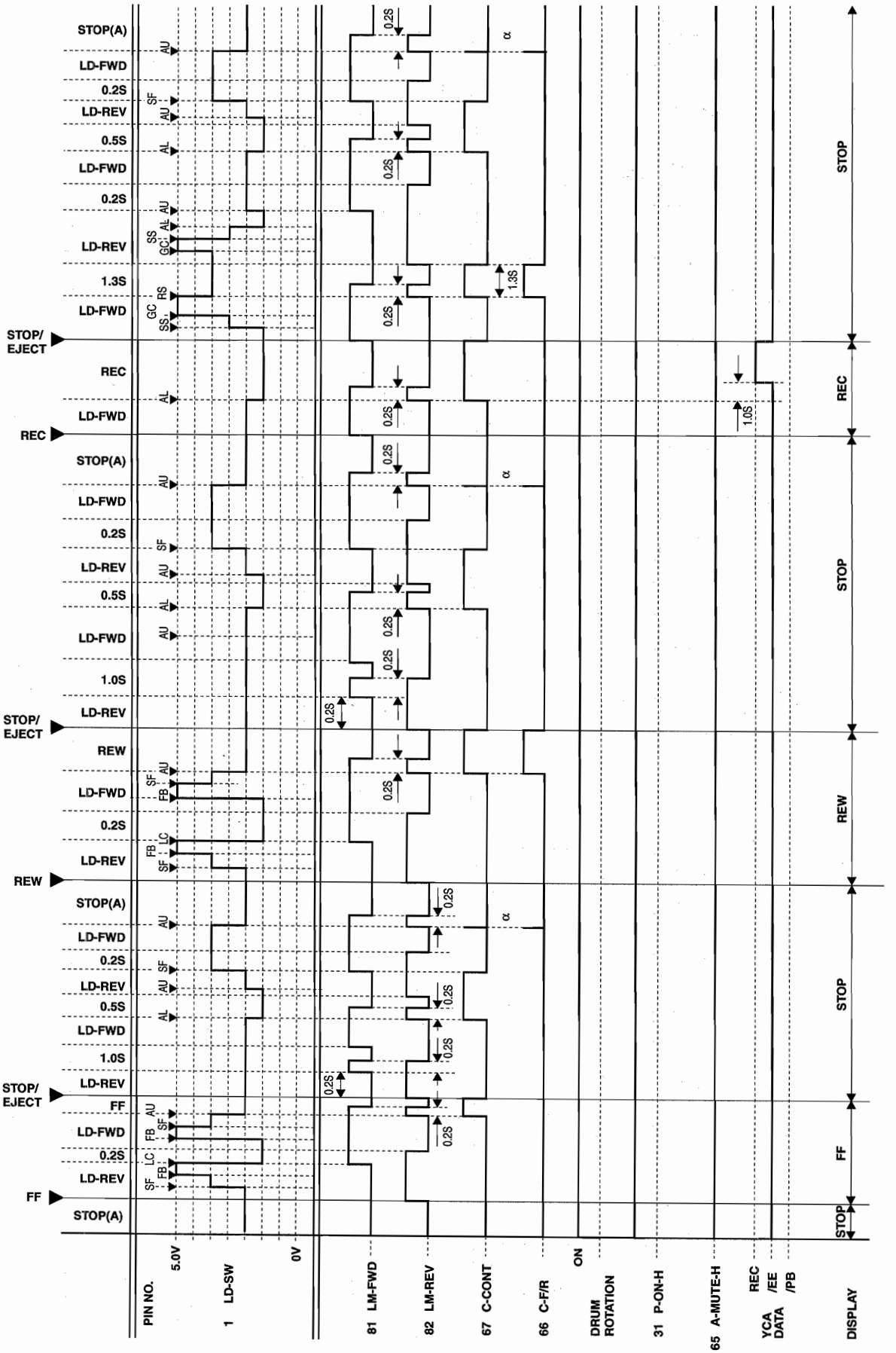

STOP(A) -> EJECT
STOP(A)
LD-FWD
0.2S
LD-REV
0.3S
STOP/ EJECT
PLAY
LD-FWD
PLAY
STOP(A)
EJECT
ST-S/ END-S "ON"
CASS-UNLD
0.5S
LD-REV
0.5S
TAPE-UNLD
0.2S
LD-REV
STOP /EJECT
STOP(A)
AU
SF
AU
AL
EJ
CL
SB
TL
LC
FB
SF
0.2S
α
0.8S
0.2S
0.8S
0.5S
0.3S
12mS
20mS
STOP
PLAY
STOP
EJECT
STOP
PIN NO.
5.0V
1 LD-SW
0V
81 LM-FWD
82 LM-REV
76 C-CONT
66 C-F/R
ON
DRUM ROTATION
31 P-ON-H
65 A-MUTE-H
REC
YCA /EE
DATA /PB
DISPLAY

Chart 4

STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> STOP(A)



TI_1

Chart 5

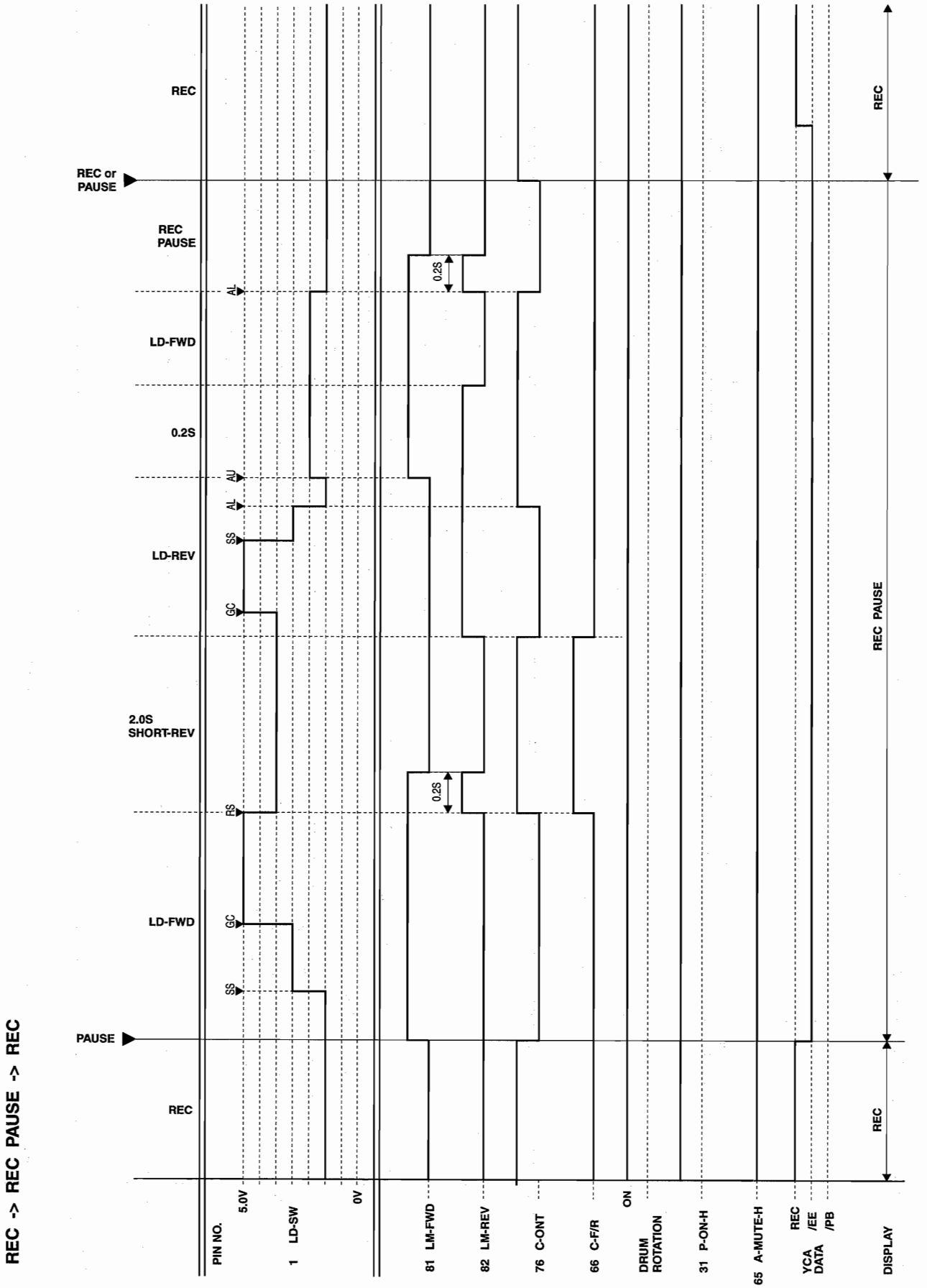
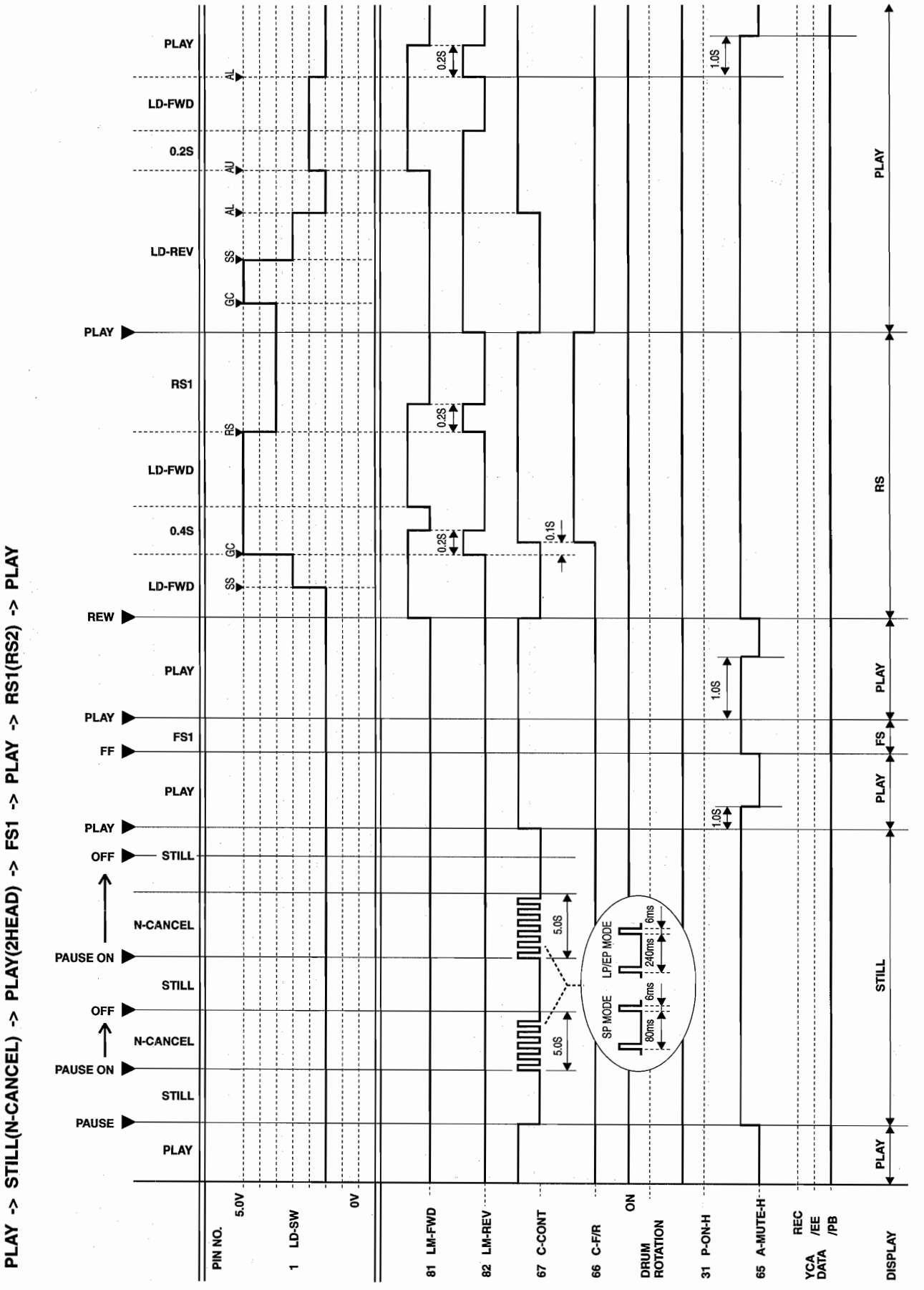

REC -> REC PAUSE -> REC
REC
REC or PAUSE
REC PAUSE
LD-FWD
0.2S
LD-REV
2.0S SHORT-REV
LD-FWD
PAUSE
REC
AL
AU
SS
GC
RS
0.2S
REC PAUSE
PIN NO.
5.0V
1 LD-SW
0V
81 LM-FWD
82 LM-REV
76 C-ONT
66 C-F/R
ON
DRUM ROTATION
31 P-ON-H
65 A-MUTE-H
REC
YCA DATA /EE /PB
DISPLAY

Chart 6


PLAY -> STILL(N-CANCEL) -> PLAY(2HEAD) -> FS1 -> PLAY -> RS1(RS2) -> PLAY
PLAY
LD-FWD
0.2S
LD-REV
PLAY
RS1
LD-FWD
0.4S
LD-FWD
REW
PLAY
PLAY
FF
FS1
PLAY
PLAY
OFF
STILL
N-CANCEL
PAUSE ON
STILL
OFF
N-CANCEL
PAUSE ON
STILL
PAUSE
PLAY
AL
AU
AL
SS
GC
RS
SS
GC
PIN NO.
5.0V
0V
1 LD-SW
0.2S
0.2S
0.2S
0.1S
5.0S
5.0S
LP/EP MODE
SP MODE
6ms
240ms
6ms
80ms
1.0S
1.0S
1.0S
81 LM-FWD
82 LM-REV
67 C-CONT
66 C-F/R
ON
DRUM ROTATION
31 P-ON-H
65 A-MUTE-H
REC
YCA /EE
DATA /PB
DISPLAY
PLAY
RS
PLAY
FS
PLAY
STILL
PLAY

IC PIN FUNCTION DESCRIPTIONS

IC 201 (TV/VCR Micro Computer)

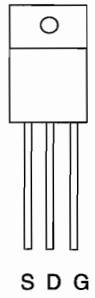
Pin No.	In/ Out	Signal Name	Function	Active Level
1	In	LD-SW	Loading Switch Input	
2	In	P-SAFETY 1	Power Supply Failure Detection 1	
3	In	P-SAFETY 2	Power Supply Failure Detection 2	
4	In	P-SAFETY 3	Power Supply Failure Detection 3	
5	In	KEY0	Key 0 Input	
6	In	KEY1	Key 1 Input	
7	In	END-SENS	End-Sensor	
8			Not used	
9	In	ST-SENS	Start-Sensor	
10	In	V-ENV	Video Envelope Input	
11	--	NU	Not used	
12		NU	Not used	
13	Out	D-V SYNC	Artificial V-Sync Output	
14	In	REMOTE	Remote signal Input	
15	Out	ROTA	ROTA Output	
16		NU	Not used	
17		ENV-DET	Envelope-Detection	
18	Out	RF-SW	RF-SW Output	
19		NU	Not Used	
20	Out	NU	Not Used	
21	Out	NU	Not Used	
22	Out	D-REC-H	Recording Output	
23	Out	REC-LED	Recording LED	
24	Out	REC-LED	Recording LED	
25	Out	NU	Not Used	
26	--	NU	Not Used	
27	--	NU	Not Used	
28	--	NU	Not Used	
29		NU	Not Used	
30	--	NU	Not Used	
31	Out	P-ON-H	P-ON Output	
32		NU	Not Used	
33	In	REC SAFETY	Record Protection Tab Detection	
34	In	RESET	Reset	
35	In	Xc-in	Oscillator C Input	
36	Out	Xc-out	Oscillator C Output	
37		Timer +5	Timer+5V In	
38	In	X-in	Oscillator Input	
39	Out	X-out	Oscillator Output	
40		GND	GND	
41	Out	SPOT-KILL	Counter-measure for Spot	
42	--	NU	Not used	
43	In	CLKSEL	Clock Select	
44	--	NU	Not used	
45	--	12C-OPEN	Not used	
46		GND	GND	
47	--	C-POW		
48	--	NU	Not used	
49		GND	OSD GND	
50	--	NU	Not used	
51	--	NU	Not used	
52	--	NU	Not used	
53	--	P-ON +5V	OSD Vcc	
54	--	HLF	HLF	
55	In	VHOLD	VHOLD	
56	In	CVIN	Video Signal Input	
57	--	GND	GND	
58	In	H-SYNC	H-Sync Input	
59	In	V-SYNC	V-Sync Input	
60	Out	OUT	Output for Picture Cut off	
61		NU	Not Used	
62	Out	OSD-B	Blue Output	
63	Out	OSD-G	Green Output	
64	Out	OSD-R	Red Output	
65	Out	A-MUTE-H	Audio Mute Output	
66	Out	C-F/R	Capstan Direction Output	
67	I/O	C-DRIVE	Capstan Drive Output	

Pin No.	In/ Out	Signal Name	Function	Active Level
68		YCA-DATA	YCA Data	
69	--	YCA-CS-L	YCA CS L	
70	--	YCACLK	YCA Clock	
71	Out	SCL	E2PROM/CHROMA IC Tuner Communication Clock	
72	I/O	SDA	E2PROM/CHROMA IC Tuner Communication Data	
73		NU	Not used	
74		C-SYNC	C-SYNC out	
75		NU	Not used	
76	Out	C-CONT	Capstan Control Output	
77	Out	D-CONT	Drum Control Output	
78	Out	S-LED	Sensor LED	
79		NU	Not used	
80	In	T-REEL	Take up Reel Pulse in	
81	Out	LM-FWD	LD-FWD Output	
82	Out	LM-REW	LD-REW Output	
83		NU	Not used	
84	Out	P-DOWN-L	Power Down Detection	
85		NU	Not used	
86	--	NU	Not used	
87	In	C-FG	Capstan-FG Input	
88		GND	GND (AMP)	
89	In	D-FG	Drum-FG Input	
90	In	D-PG	Drum-PG Input	
91		NU	Not used	
92	In	AMP Vref in	Standard Voltage Input	
93		C	Ext. Capacitor Connection Port for Analog Amp	
94	I/O	CTL (-)	CTL (-)	
95	I/O	CTL (+)	CTL (+)	
96		AMPC	AMPC	
97	Out	CTL AMPout	CTL Amp Output	

Pin No.	In/ Out	Signal Name	Function	Active Level
98	--	P-ON+5V	Power Supply for AMP	
99	--	ALL+5V	A/D, D/A Standard Voltage	
100	In	X-RAY	X-Ray Protection	

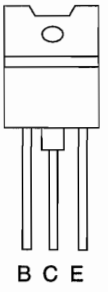
LEAD IDENTIFICATIONS

2SK2876



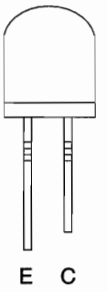
S: Souce
D: Drain
G: Gate

2SD2627



E: Emitter
C: Collector
B: Base

ST-304L



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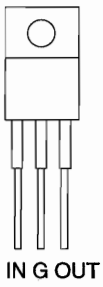
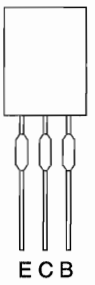
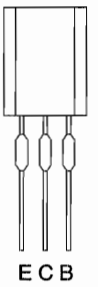




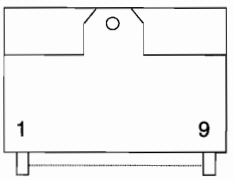
KRA103M
KRC103M
2SC2839



2SA1317
2SC1627
2SC2120
2SC3331
2SD400
2SA950
KTA1267
KTC3199

LTV-817

LA78040



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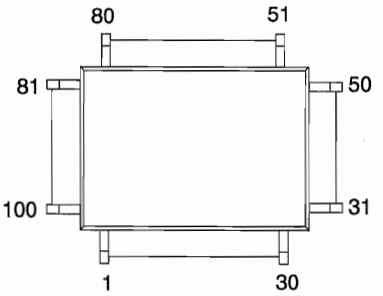

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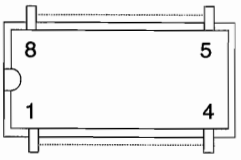
LA4524



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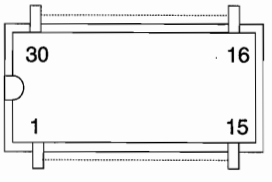
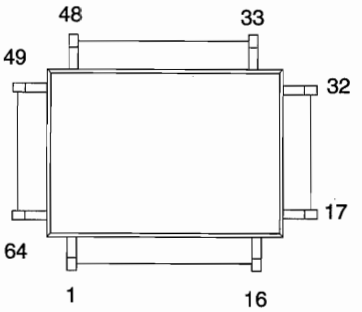


M61203FP



DECK MECHANISM SECTION

13" COLOR TV/VCR COMBINATION

SC313A
F313CA

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Alignment for Mechanism**
- **Disassembly/Assembly of Mechanism**

TABLE OF CONTENTS

Standard Maintenance 2-1-1
Service Fixtures and Tools 2-2-1
Mechanical Alignment Procedures 2-3-1
Disassembly/Assembly Procedures of Deck Mechanism 2-4-1
Front Loading Assembly 2-4-8
Alignment Procedure of Mechanism 2-4-10

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ❍: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	❍	●	❍	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B27	Tension Lever Assembly		●		●
B31	AC Head Assembly			●	
B32, B339	Reel (T), Reel (S)			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
*B73	FE Head CBA			●	
B133	Idler Assembly		●		●
B410	Pinch Arm (A) Assembly		●		●
B414	Main Brake S Assembly		●		●
B416	Main Brake T Sub Assembly		●		●
B525	Loading Belt		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.

   * B73 ------ VCR Model only

Cleaning

Cleaning of Video Head

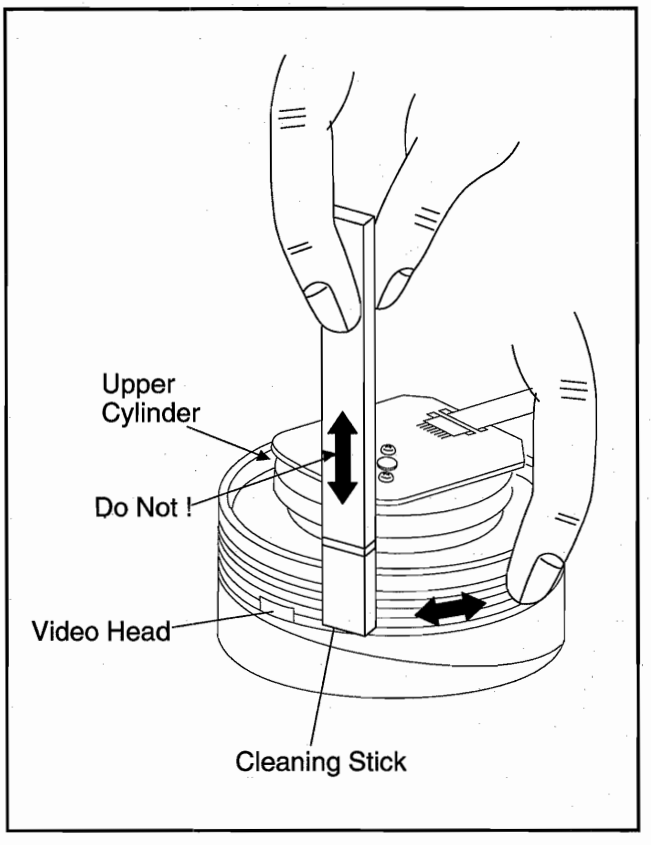
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of Audio Control Head

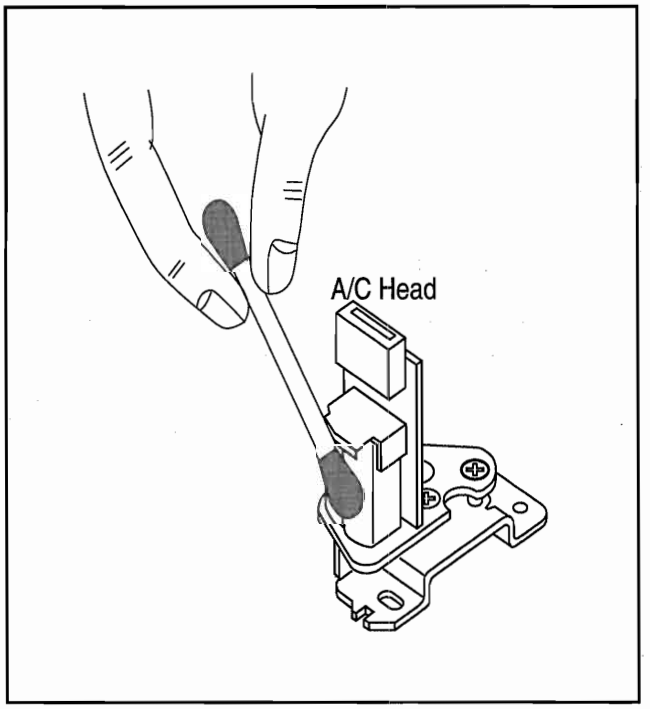
Clean the head with a cotton swab.

Procedure

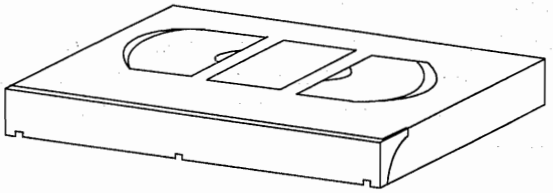
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

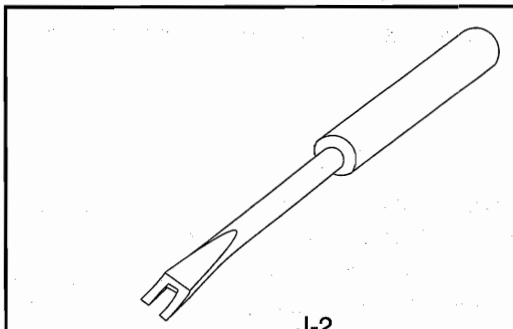
1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



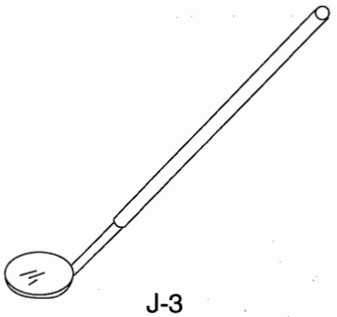
SERVICE FIXTURE AND TOOLS



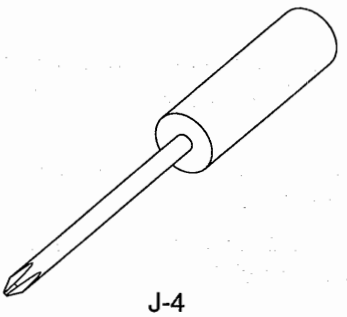
J-1-1, J-1-2



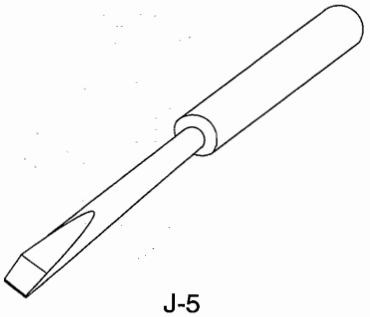
J-2



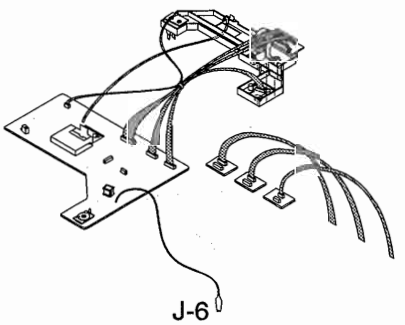
J-3



J-4



J-5



J-6

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL8A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver -	Available Locally	X Value
J-6	U21 Deck Extension Cable	N1201XA	All Mechanical and Electrical Adjustments

Note:
Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-6 to connect the Deck Assembly with the Main CBA.

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Rear Cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTION on page 1-6-1.)
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt (B) in the appropriate direction shown in Fig. M1 until the First Gear starts turning. Stop turning the LDG Belt (B). Then, turn the First Gear in the appropriate direction continuously. However, movement of the Cam Gear will be very slow. Allow a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Rear Cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTION on page 1-6-1.)
3. Make sure that the Moving guide assemblies are in the Eject Position. When the Moving guide assemblies are in the Loading Position, go to step 4. When the Moving guide assemblies are in the Eject Position, go to step 6.
4. First, turn the LDG Belt (B) in the appropriate direction shown in Fig. M1 until the First Gear starts turning.
5. Stop turning the LDG Belt (B) immediately after the First Gear starts turning.
6. Turn the First Gear in the appropriate direction until Moving guide assemblies come to the Eject Position. Stop turning when the assemblies begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
7. Turn the LDG Belt (B) in the appropriate direction continuously, and the cassette tape will be ejected. As stated, movement of the Cam Gear will be very slow. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Rear Cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTION on page 1-6-1.)
3. Turn the LDG Belt (B) in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt (B) until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

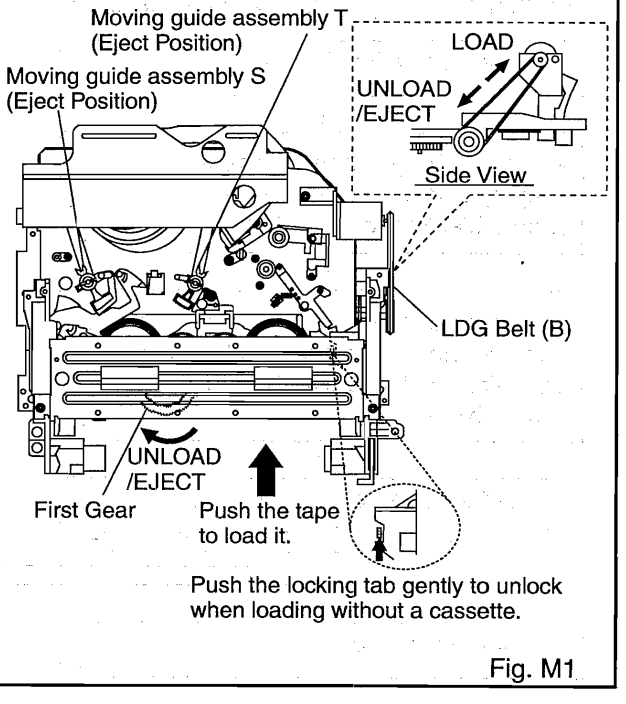


Fig. M1

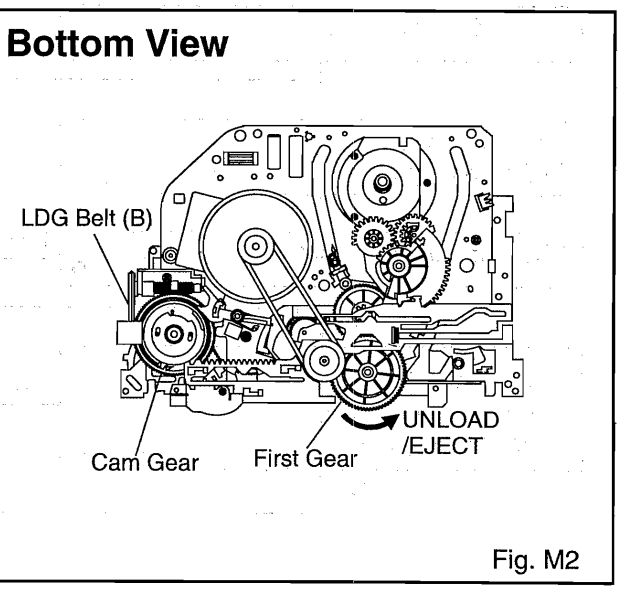


Fig. M2

1. Tape Interchangeability Alignment

Note:

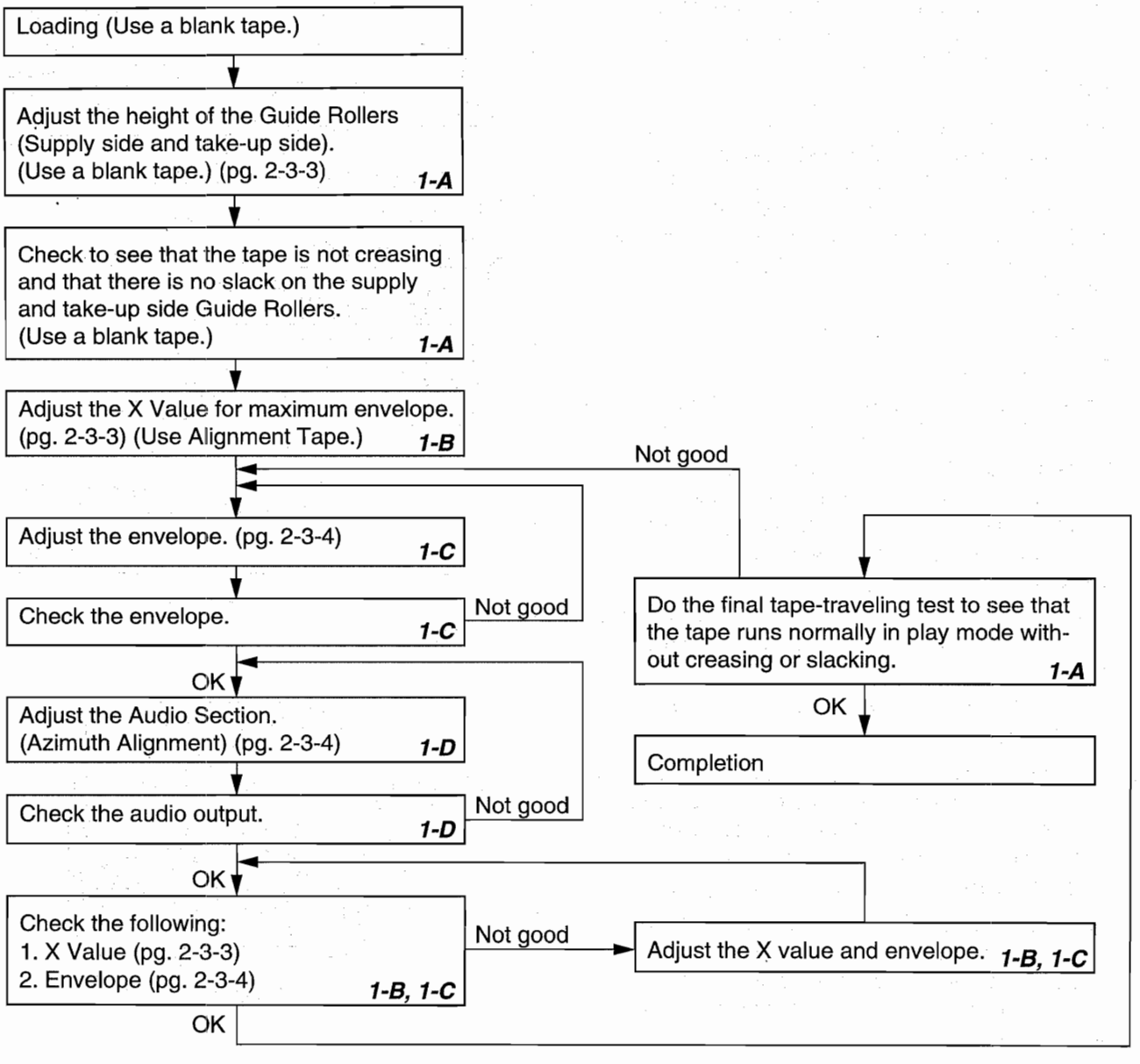
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL8N)
Guide Roller Adj. Screwdriver
X-Value Adj. Screwdriver

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling


Loading (Use a blank tape.)
Adjust the height of the Guide Rollers (Supply side and take-up side). (Use a blank tape.) (pg. 2-3-3) 1-A
Check to see that the tape is not creasing and that there is no slack on the supply and take-up side Guide Rollers. (Use a blank tape.) 1-A
Adjust the X Value for maximum envelope. (pg. 2-3-3) (Use Alignment Tape.) 1-B
Not good
Adjust the envelope. (pg. 2-3-4) 1-C
Check the envelope. 1-C
Not good
OK
Adjust the Audio Section. (Azimuth Alignment) (pg. 2-3-4) 1-D
Check the audio output. 1-D
Not good
OK
Check the following:
1. X Value (pg. 2-3-3)
2. Envelope (pg. 2-3-4) 1-B, 1-C
Not good
Adjust the X value and envelope. 1-B, 1-C
OK
Do the final tape-traveling test to see that the tape runs normally in play mode without creasing or slacking. 1-A
OK
Completion

1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)
   Note: Beneath each Guide Roller, there is a small screw. (Refer to Fig. M5.) This screw works to apply adequate torque to the shaft of each Guide Roller so that the Guide Roller turns properly. Even when adjusting the height of the Guide Roller(s), do not touch these two small screws.
3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and AC Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the AC Head. (Fig. M6)

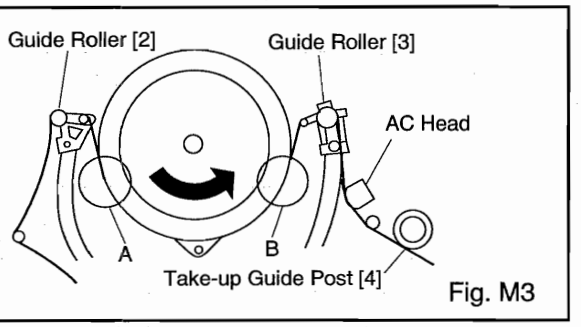


Fig. M3

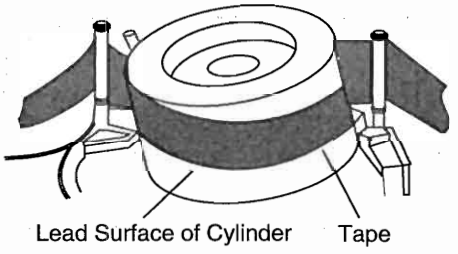


Fig. M4

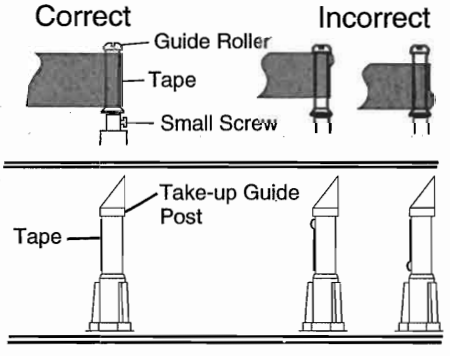


Fig. M5

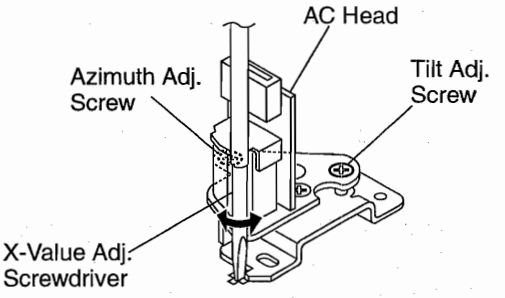


Fig. M6

1-B. X Value Alignment

Purpose:

To align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Connect the oscilloscope to J149 (C-PB) and J152 (CTL) on the Main CBA. Use J96 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (FL8N) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing the CH UP button then the PLAY button on the VCR. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at J149 (C-PB) is maximum. (Fig. M6)
5. Press CH UP button on VCR until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the VCR until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing the CH UP button and then the PLAY button on the VCR.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to J149 (C-PB) on the Main CBA. Use J96 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (FL8N). Set the Tracking Control Circuit to the center position by pressing the CH UP and then the PLAY button on the VCR. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes UP to achieve 1/2 level of envelope should match the number of pushes DOWN from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the alignment tape (FL8N) and confirm that the audio signal output level is 8 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

Fig. M7

Dropping envelope level at the end of track.

Fig. M8

Envelope is adjusted properly. (No envelope drop)

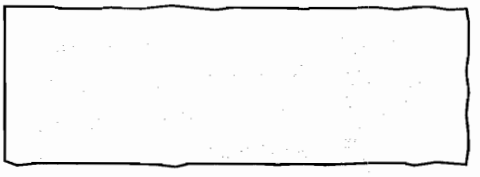


Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.
   (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1.)
2. Remove Front Loading Assembly from main mechanism of the deck assembly. (See Fig. DM3)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [43] and [44] in Fig. DM1 on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[0]	[0]	Joint Holder B	T	DM3	(S-1)	
[1]	[0]	Front Loading Assembly	T	DM3	2(S-2), Rec Arm	(+) Refer to Alignment Sec. Pg. 2-4-11
[2]	[2]	Cylinder Shield	T	DM3	2(S-3)	
[3]	[3]	Deck Grounding Plate	T	DM3	(S-4)	
[4]	[2]	Cylinder Assembly	T	DM1, DM4	3(S-5), VH Connector A and B, ACH Connector AN(7P) and B(7P)	
[5]	[5]	Loading Motor Assembly	T	DM1, DM5	(S-6), LDG Belt (B), ACH Connector AN(9P) and B(9P)	
[6]	[5]	Loading Motor Holder	T	DM1, DM5	2(S-7), *(L-1)	
[7]	[5]	AC Head Assembly	T	DM1, DM6	2(S-8)	
[8]	[8]	Tape Guide Assembly	T	DM1, DM6	*(P-1), *(P-2), (C-1)	
[9]	[9]	Door Opener B	T	DM1, DM6	(S-9), *(L-2)	
[10]	[9]	Pinch Arm (A) Assembly	T	DM1, DM6	*(P-3)	
[11]	[10]	Pinch Arm (B) Assembly	T	DM1, DM6	E ring	
[12]	[8]	Capstan Motor	B	DM2, DM7	3(S-10), Capstan Belt	
[13]	[13]	Cam Gear (B)	B	DM2, DM8	(C-2)	
[14]	[14]	Center Pully	B	DM2, DM8	(C-3)	
[15]	[15]	M Lever Holder	B	DM2, DM8	(C-4)	
[17]	[17]	Insulation Cap A	T	DM1, DM9	(S-12)	
[18]	[17]	Mode Lever Holder A	B	DM2, DM9	(S-13)	
[19]	[13]	Mode Lever A Assembly	B	DM2, DM9	*2(L-3)	
[20]	[18]	Mode Gear	B	DM2, DM9	(C-5), (W-1)	(+) Refer to Alignment Sec. Pg. 2-4-10
[21]	[13]	Cam Gear (A)	B	DM2, DM9		
[22]	[20]	Pully Assembly	B	DM2, DM9		
[23]	[21]	Worm Holder	B	DM2, DM9	(S-14)	
[24]	[23]	Insulator Cap B	T	DM1, DM10	(S-15), *(P-5)	
[25]	[24]	First Post Assembly	T	DM1, DM10	(S-16)	
[26]	[25]	FE Head	T	DM1, DM10	(S-17)	
[27]	[26]	Prism	T	DM1, DM10	(S-18)	
[28]	[12]	TG Post Assembly	T	DM1, DM10	(S-19), *(L-4)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[29]	[28]	M Brake T Assembly	T	DM1, DM11	*(P-6)	
[30]	[18]	M Brake S Assembly	T	DM1, DM11	*(L-7)	
[31]	[30]	Tension Lever Assembly	T	DM1, DM11	*(P-6), (C-6)	
[32]	[31]	Tension Lever Sub Assembly	T	DM1, DM11		
[33]	[31]	Reel S Assembly	T	DM1, DM11	(C-7), Poly Slider Washer	
[34]	[29]	Reel T Assembly	T	DM1, DM11	(C-8), Poly Slider Washer	
[35]	[33]	Reel Shaft	T	DM1, DM11	2(S-20)	
[36]	[18]	First Gear	B	DM2, DM12	(C-9)	
[37]	[36]	Second Gear	B	DM2, DM12	(C-10), (W-2)	
[38]	[37]	FF Arm	T	DM1, DM13		
[39]	[37]	Idler Assembly	T	DM1, DM13		
[40]	[37]	BT Arm Assembly	B	DM2, DM14		
[41]	[19]	Loading Arm T Assembly	B	DM2, DM14	(C-11)	(+) Refer to Alignment Sec. Pg. 2-4-10
[42]	[41]	Loading Arm S Assembly	B	DM2, DM14		(+) Refer to Alignment Sec. Pg. 2-4-10
[43]	[2]	Moving Guide S Preparation	T	DM1, DM15		
[44]	[2]	Moving Guide T Preparation	T	DM1, DM15		
[45]	[2]	Cleaner Lever Assembly	T	DM1, DM4		
[46]	[45]	CL Post	T	DM1, DM4		
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.

Top View

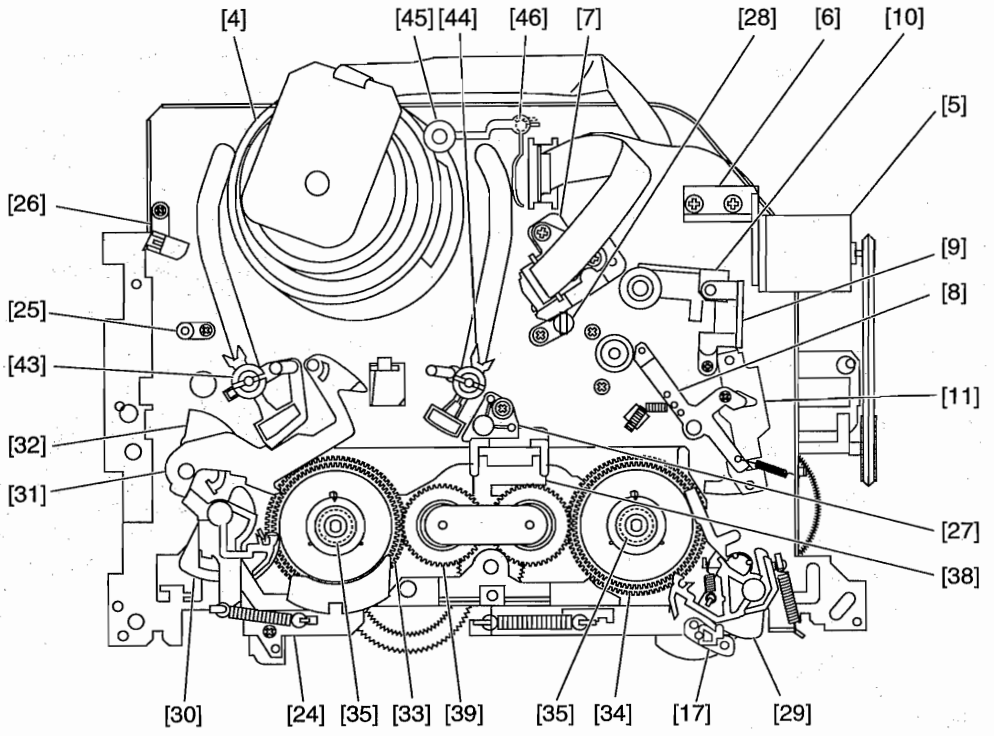


Fig. DM1

Bottom View

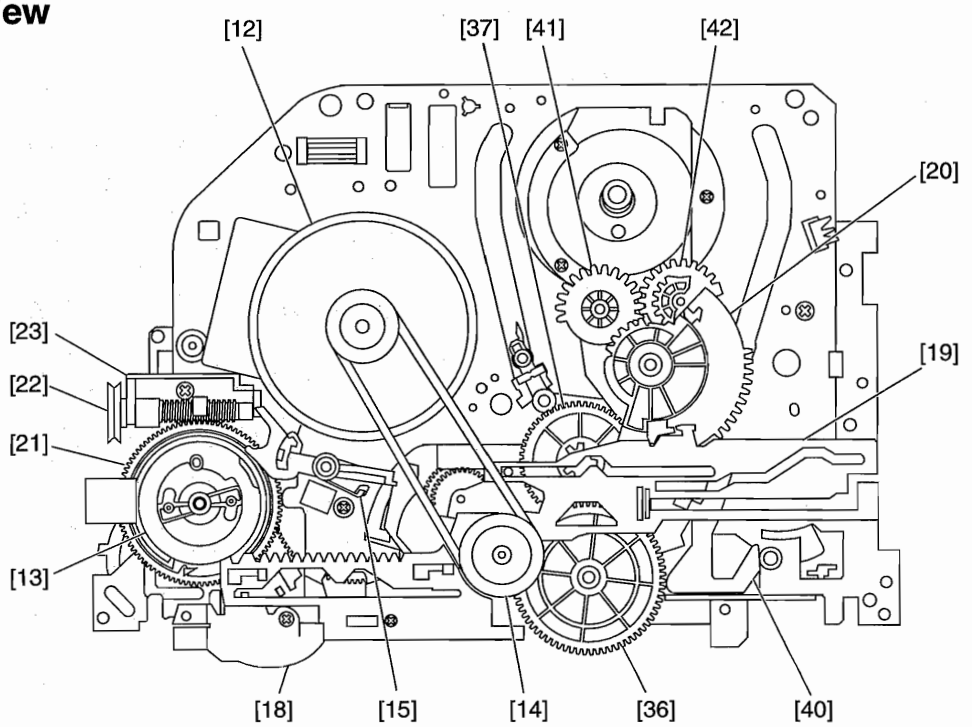
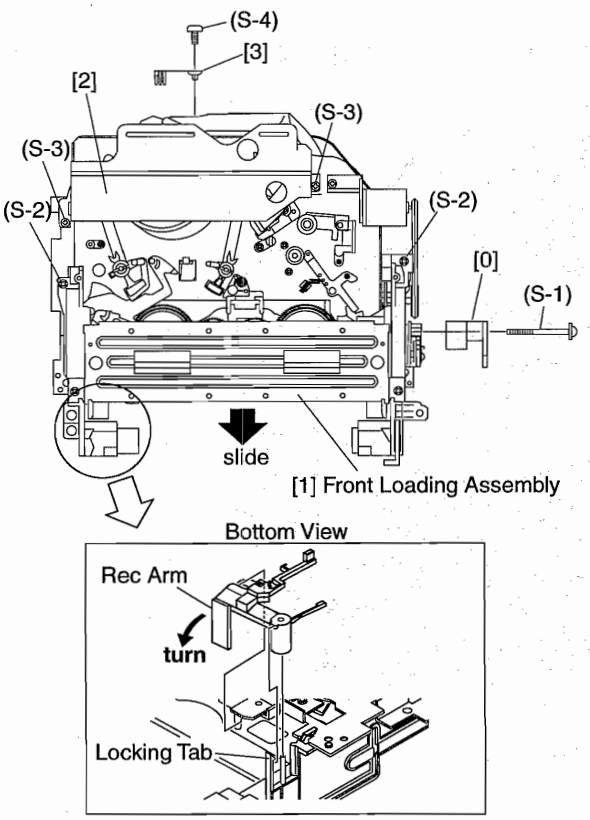


Fig. DM2



To remove Front Loading Assembly:
1. Remove Rec Arm while releasing Locking Tab as shown.
2. Remove Screw (S-1) and [0] Joint Holder B.
3. Remove Screw 2(S-2).
4. Lift it up slightly and then, slide Front Loading Assembly.

Fig. DM3

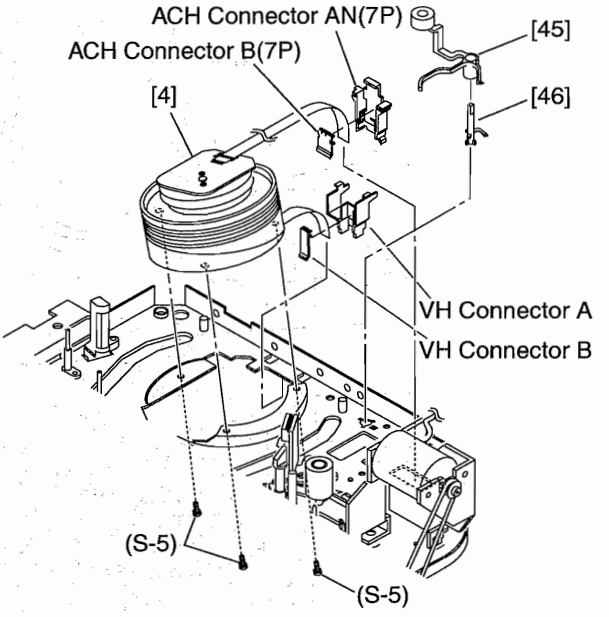


Fig. DM4

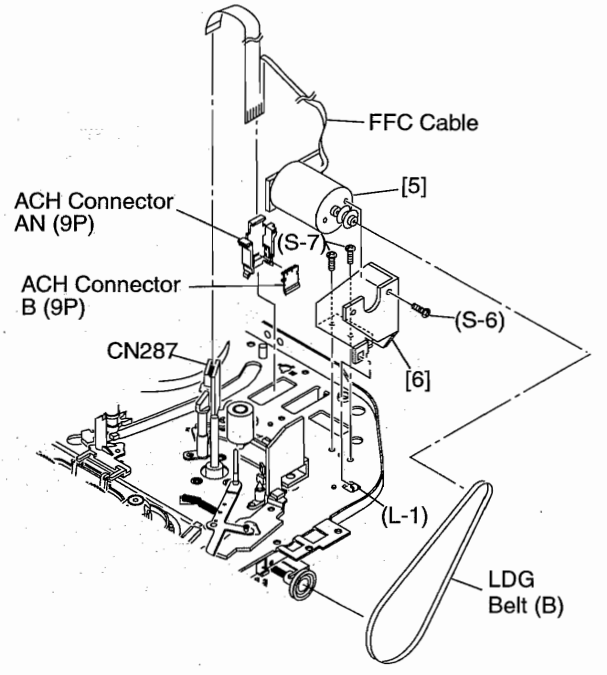


Fig. DM5

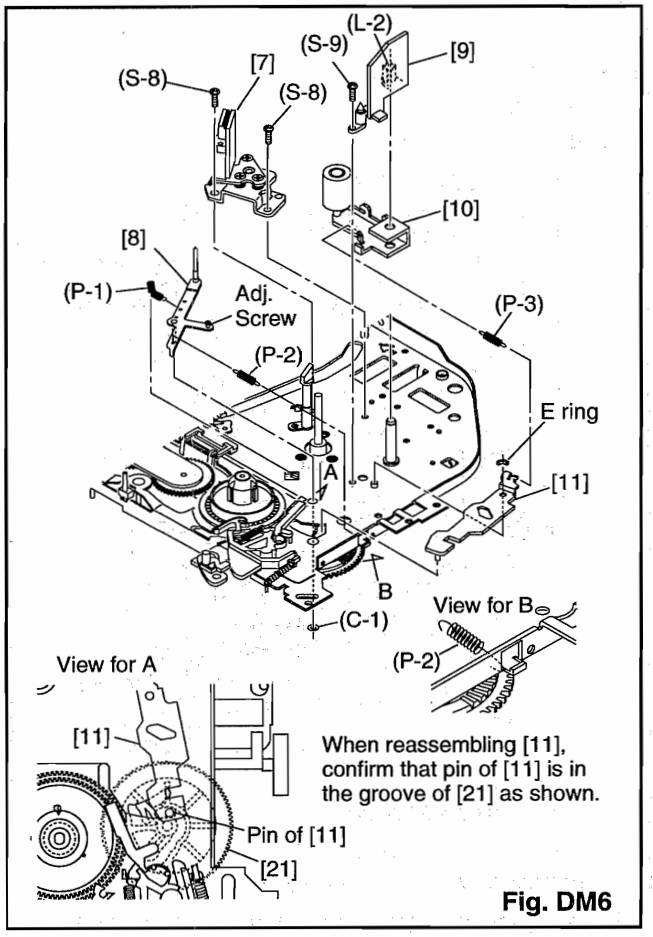
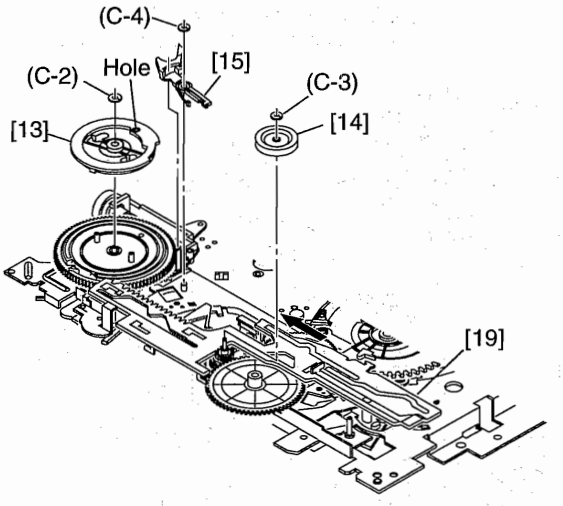


Fig. DM6



When reassembling [13], confirm that the hole on [13] is in the correct position as shown.
After reassembling [13], be sure to slide [19] until the left edge of [19] touches [13] as shown in Fig. DM7.

Fig. DM8

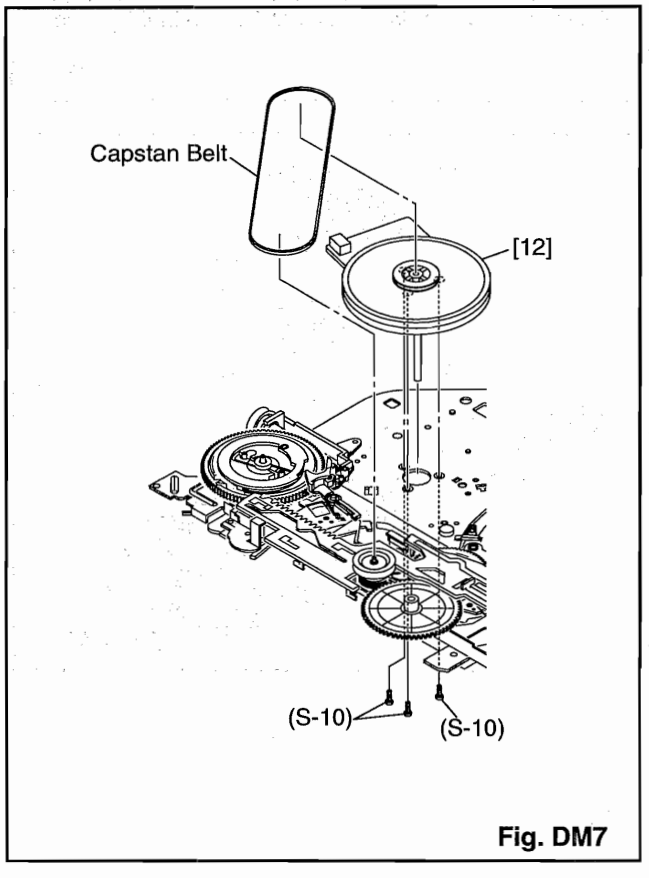
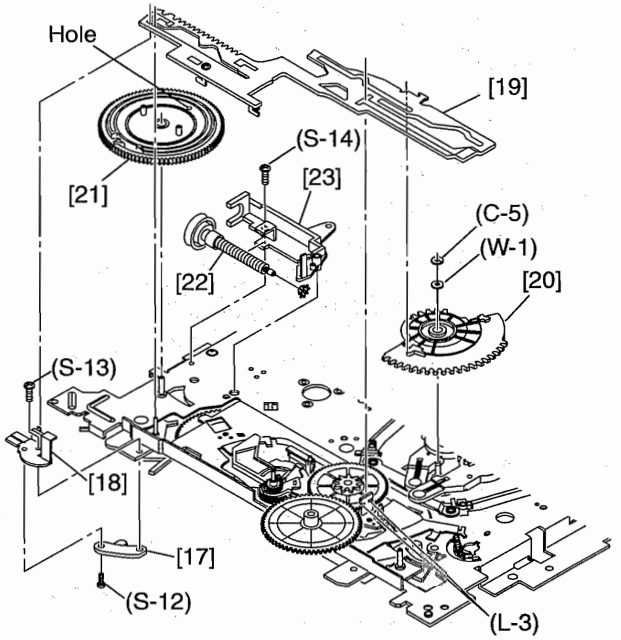


Fig. DM7

When reassembling [21], confirm that the hole on [21] is in the correct position as shown.



Position of Mode Lever when installed

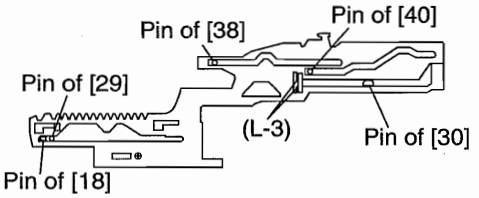
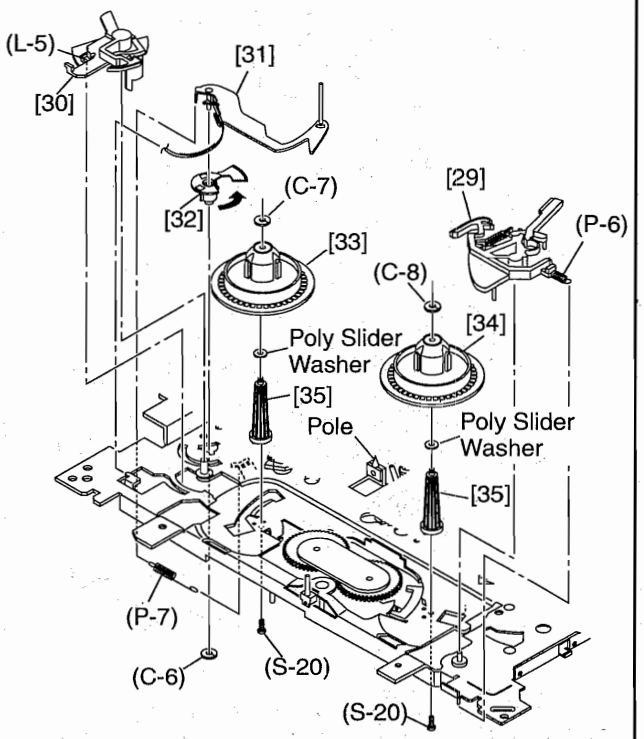
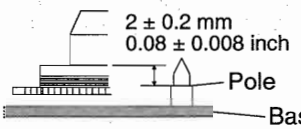


Fig. DM9





If the alignment height is not correct, it is acceptable to use one more Poly Slider Washer to raise the height. (Poly Slider Washer is 0.1 mm/0.004 inch in thickness.)

Fig. DM11

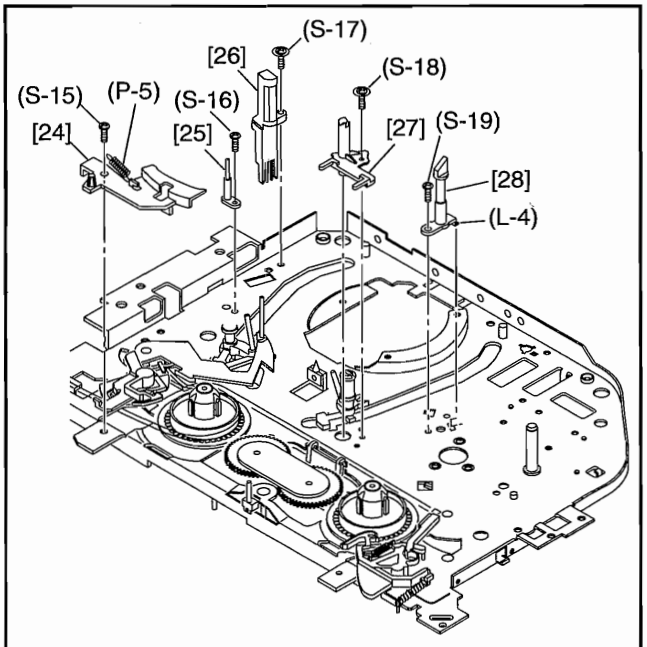


Fig. DM10

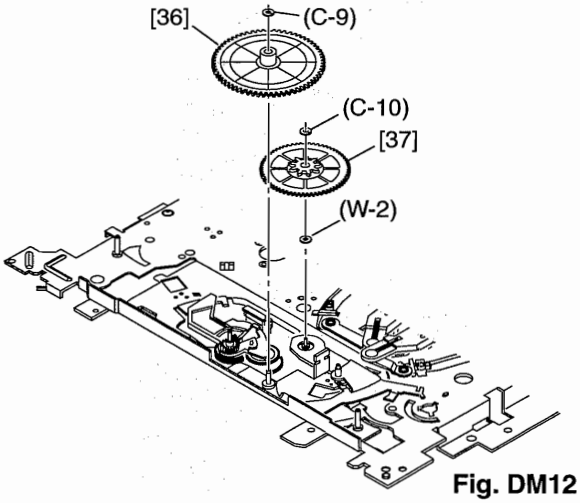


Fig. DM12

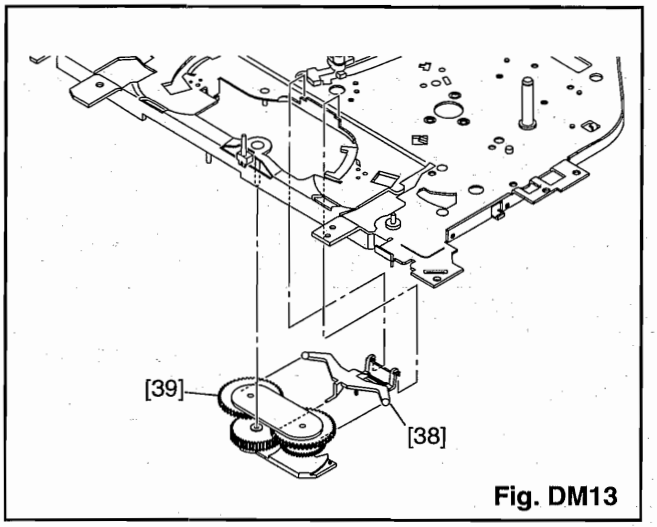


Fig. DM13

Refer to the Alignment Section, Page 2-4-10.

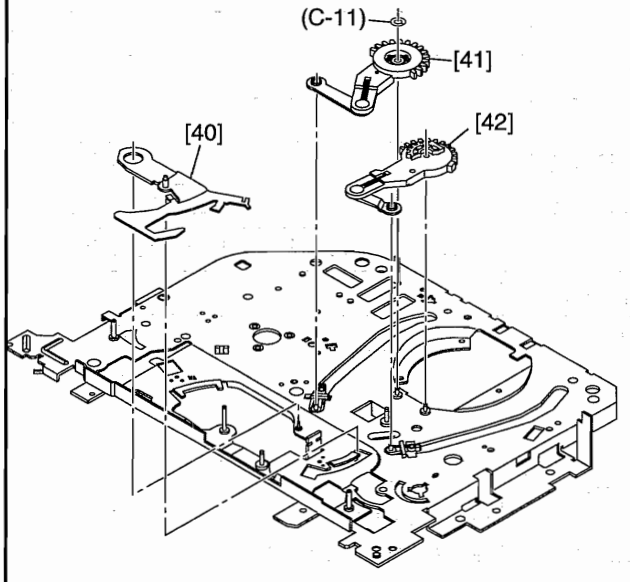


Fig. DM14

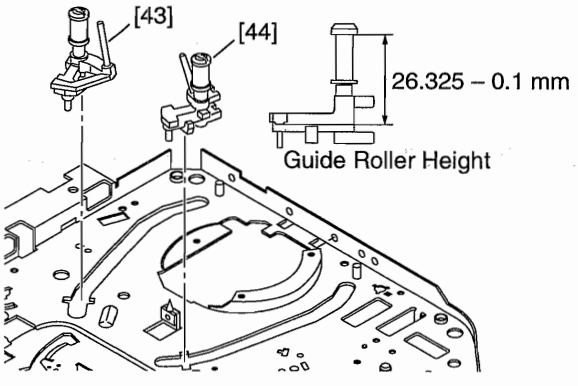


Fig. DM15

Front Loading Assembly

Before following the procedures described below, be sure to remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM3.) When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder	T	DM17	2(S-1), *2(L-1)	
[2]	[1]	Slider Gear	L, R	DM16, DM17	*4(L-2)	Eject Position
*[3]	[2]	Slider Shaft	T	DM16, DM17		Eject Position
[4]	[4]	Cassette Plate	T	DM17	2(S-2)	
[5]	[4]	Slider L	T	DM17		
[6]	[4]	Slider R	T	DM17	(S-3)	
[7]	[6]	Door Opener A	R	DM17		
[8]	[8]	Lock Lever	B	DM17	(S-4), *(P-1)	
[9]	[3]	Cassette Guide R	R	DM17		
[10]	[3]	Cassette Guide L	L	DM17		
[11]	[11]	Joint Holder A	R	DM17	(S-5), *(P-2)	
[12]	[11]	Cassette Drive Sub Gear	R	DM17, DM18		Eject Position
[13]	[11]	Cassette Drive Gear	R	DM17, DM18		Eject Position
[14]	[13]	Cassette Drive Lever	R	DM17	Cassette Drive Spring	Eject Position
[15]	[14]	Front Door Opener	R	DM17, DM18	*(L-3)	
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

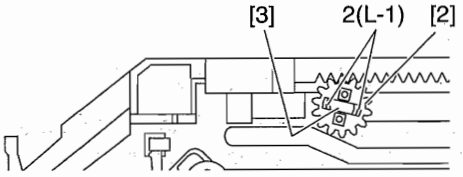
⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.

*[3]: They are divided into two steps because, before reassembling Slider Shaft, one Slider Gear must be preinstalled at either end of Slider Shaft.

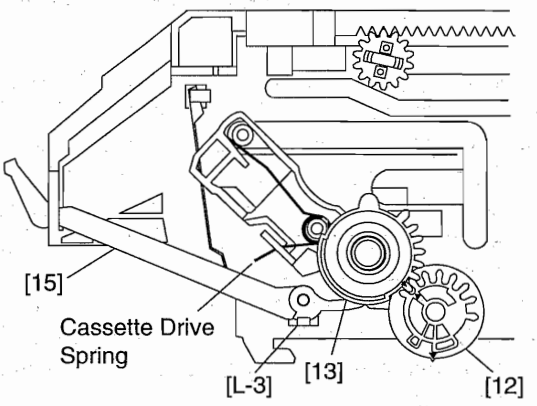
View before disassembling [2] and [3]
(Installation of Slider Shaft and Slider Gear)



Install [2] and [3] in Eject position.
(When disassembling, [2] and [3] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [2], [3] and other parts are in Eject position.

Fig. DM16



When reassembling [12] and [13], refer to the Alignment Section, Pg. 2-4-11.

- This figure shows where [12], [13], [15] and other parts are in Eject position.

Fig. DM18

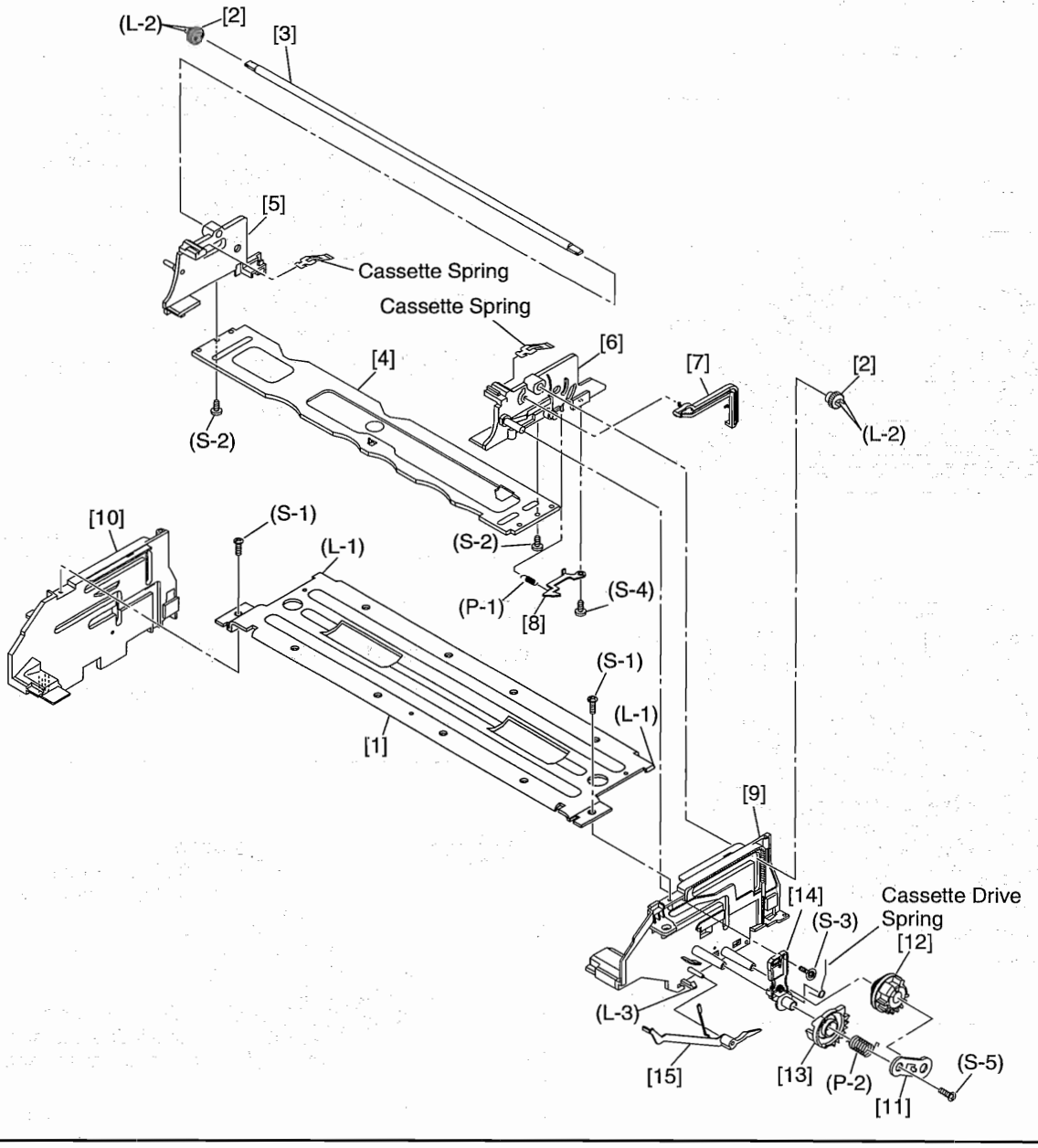


Fig. DM17

ALIGNMENT PROCEDURES OF MECHANISM

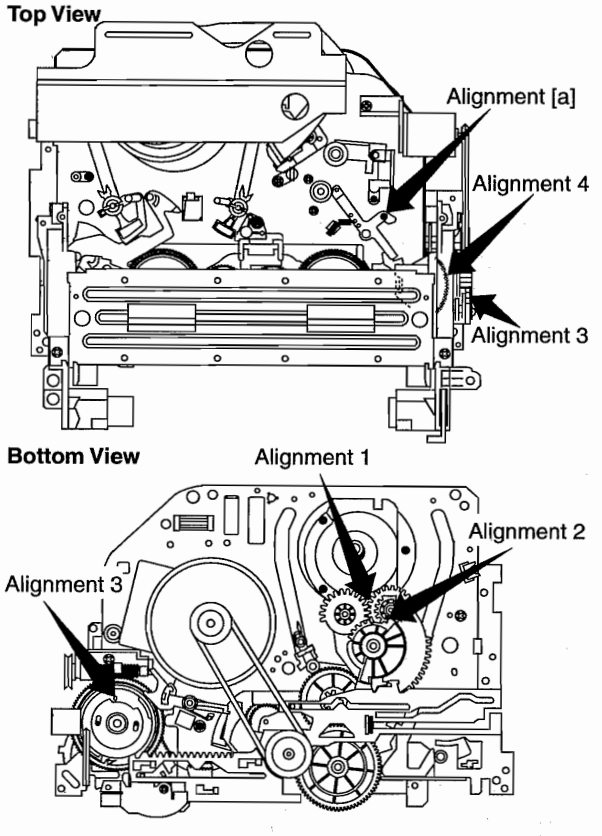
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position



Alignment [a] can be done independently of any other alignment.

Fig. AL1

Alignment 1

Loading Arm, S and T Assembly

Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.

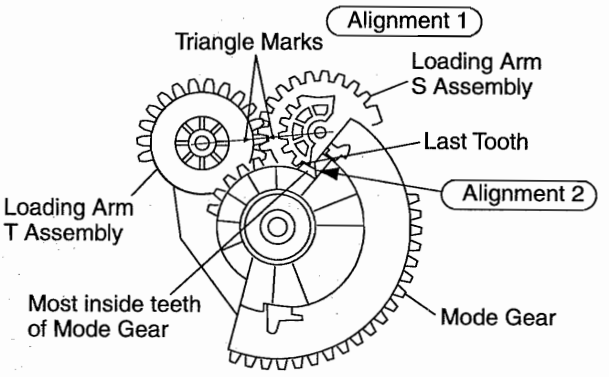


Fig. AL2

Alignment [a]

Tape Guide Arm Assembly

Measurement of the screw must be as specified in Fig. AL3.

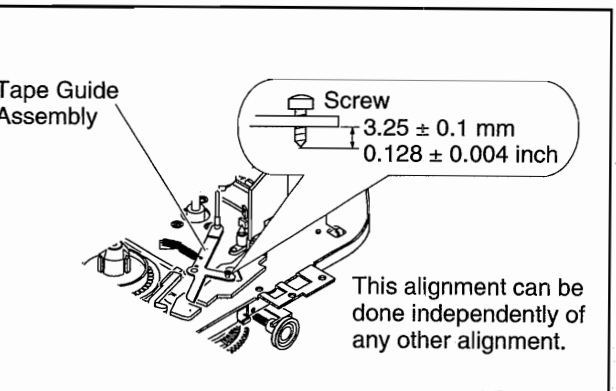


Fig. AL3

Alignment 3

Cassette Drive Gear, Cassette Drive Sub Gear

Install the Cassette Drive Gear and Cassette Drive Sub Gear so that their triangle marks point to each other as shown in Fig. AL4.

Alignment 4

Cam Gear (A), Cassette Drive Sub Gear

Install the Front Loading Assembly so that the triangle mark of Cassette Drive Sub Gear is aligned with the indent of the Cam Gear (A) as shown in Fig. AL4.

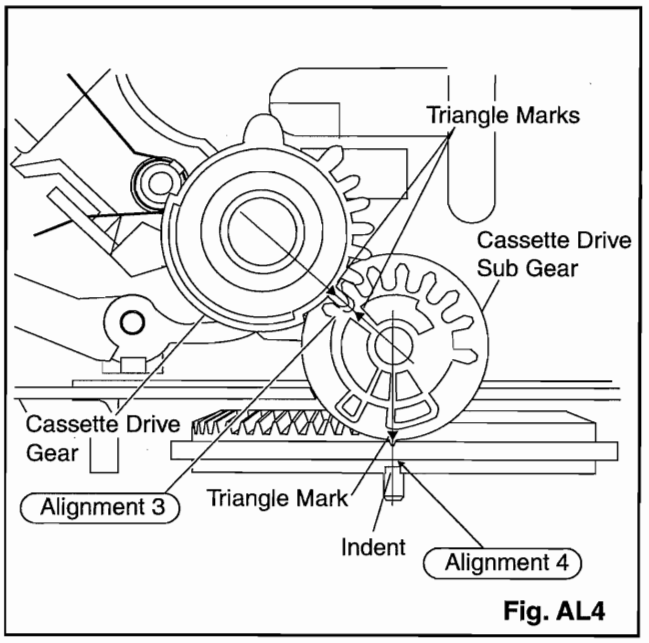


Fig. AL4

EXPLODED VIEWS AND PARTS LIST SECTION

13" COLOR TV/VCR COMBINATION

SC313A
F313CA

Sec. 3: Exploded views and Parts List Section

- **Exploded views**
- **Parts List**

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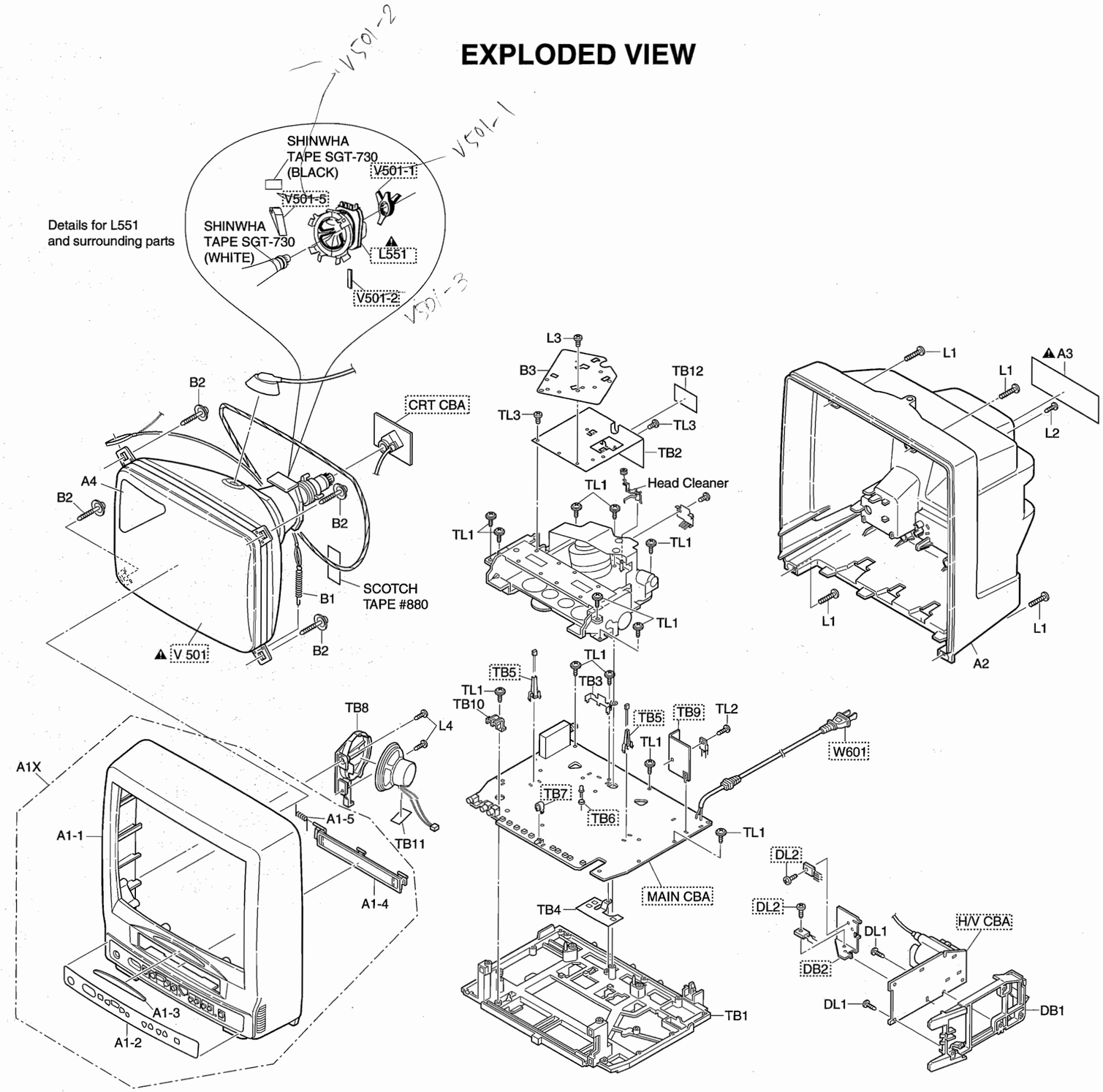
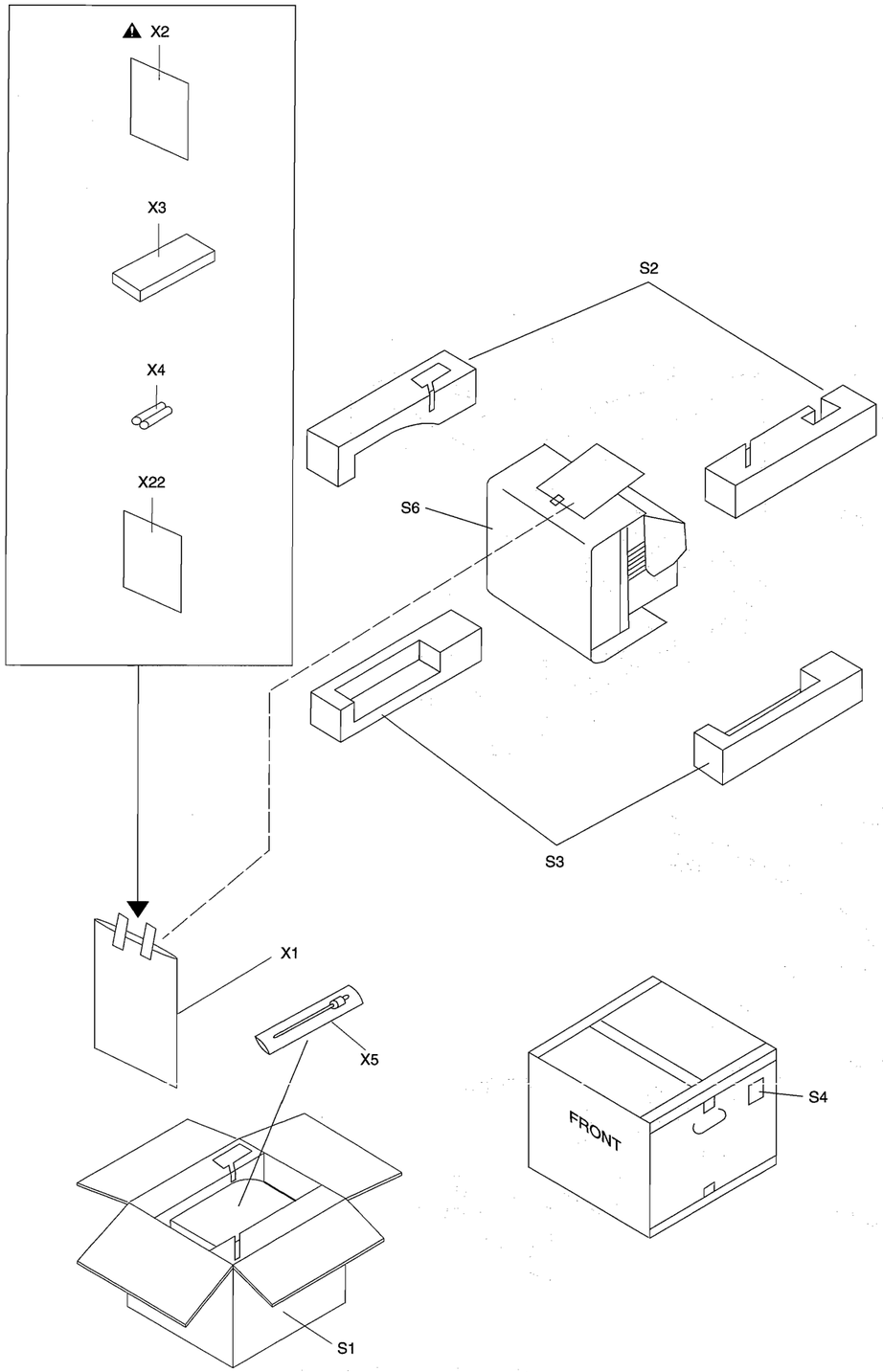
CABINET

EXPLODED VIEW



Marked parts See Electrical Parts List

Packing



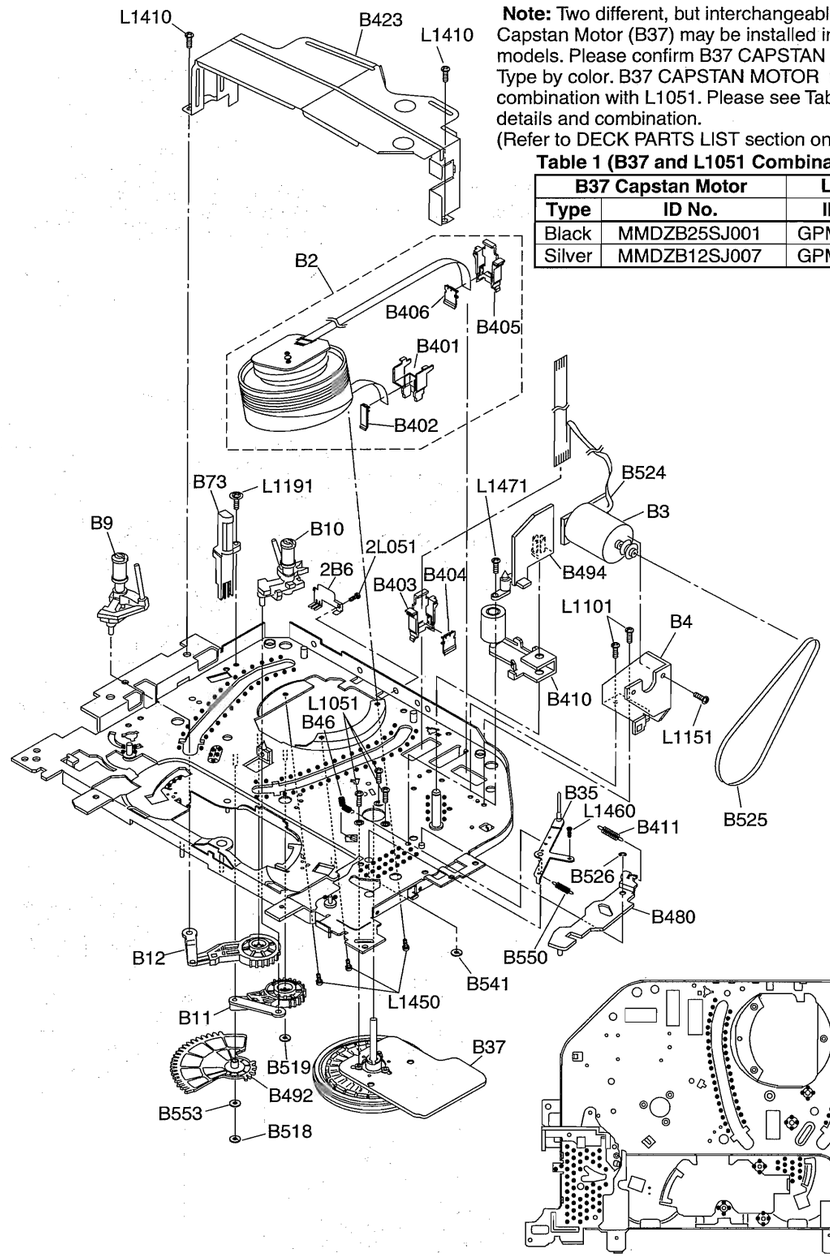
Deck Mechanism View 1

Mark	Description	Part No.
•••••	Floil G-374G (Blue grease)	0VZZ00109

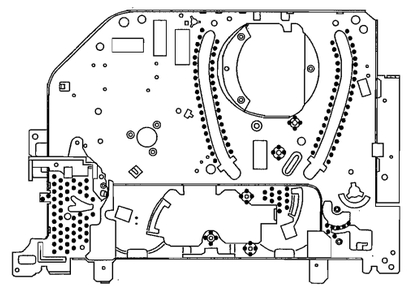
Note: Two different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Please confirm B37 CAPSTAN MOTOR Type by color. B37 CAPSTAN MOTOR type varies in combination with L1051. Please see Table 1 for details and combination.
(Refer to DECK PARTS LIST section on page 2-6-1.)

Table 1 (B37 and L1051 Combination)

B37 Capstan Motor		L1051
Type	ID No.	ID No.
Black	MMDZB25SJ001	GPMS6090
Silver	MMDZB12SJ007	GPMB6090



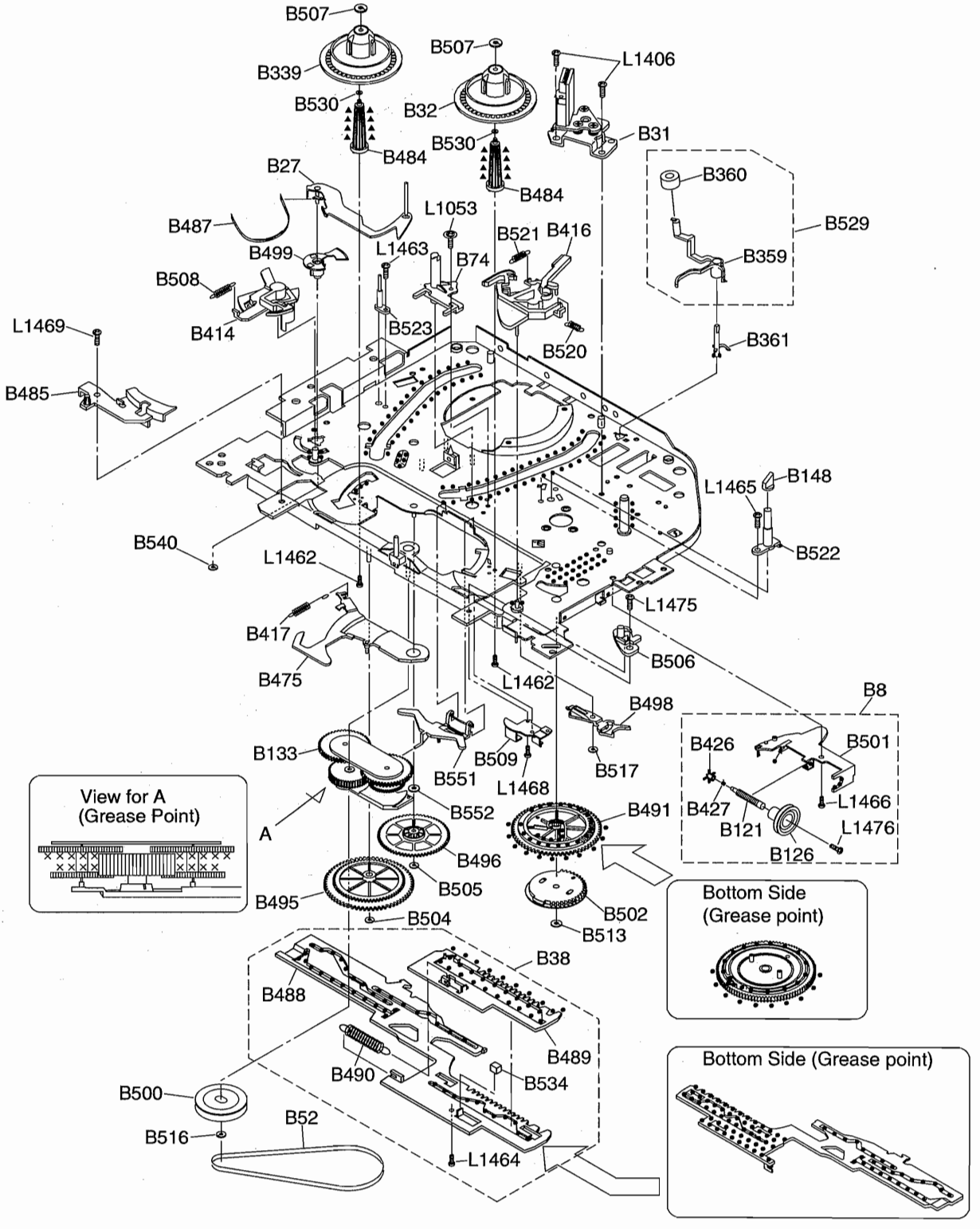
Some Ref. Numbers are not in sequence.



Chassis Assembly Bottom View (Grease Point)

Deck Mechanism View 2

Mark	Description	Part No.
×××××	Sankol FG-84M (White grease)	0VZZ00062
•••••	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068

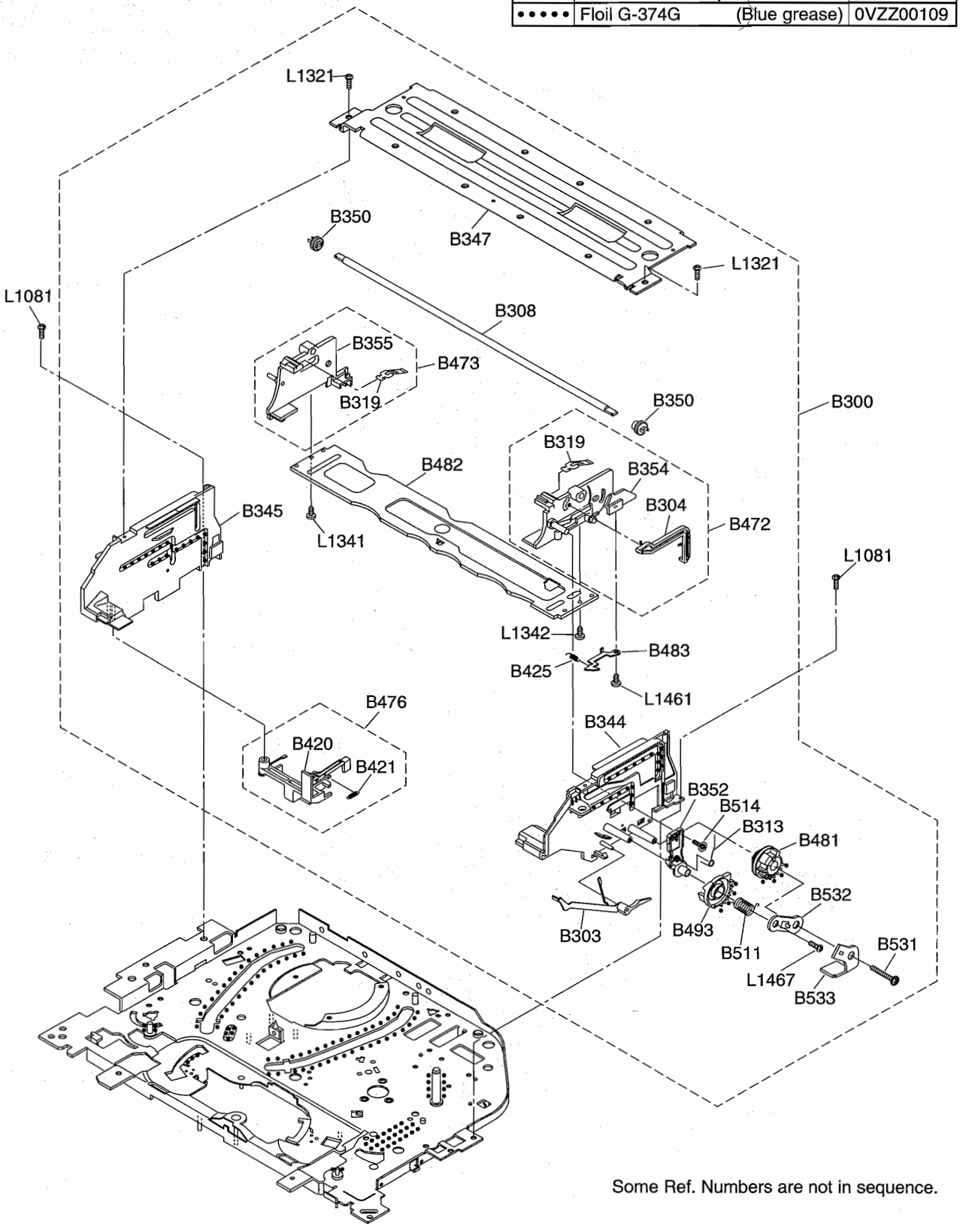


B359, B360 and B529: See the Mechanical Parts List.

Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description	Part No.
•••••	Floil G-374G (Blue grease)	0VZZ00109



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Ref. No.	Description	Part No.
A1X	FRONT CABINET ASSEMBLY (A1-1~5 are included) (For Model SC313A)	0EM101014
A1X	FRONT CABINET ASSEMBLY (A1-1~5 are included) (For Model F313CA)	0EM101016
A1- 1	FRONT CABINET	0EM000383
A1- 2	CONTROL PLATE	0EM201162
A1- 3	BRAND PLATE (For Model SC313A)	0EM404173
A1- 3	BRAND PLATE (For Model F313CA)	0EM404194
A1- 4	CASSETTE DOOR or	0EM301317
	CASSETTE DOOR	0EM301139
A1- 5	DOOR SPRING	0VM403773
A 2	REAR CABINET	0EM000384
A 3 ⚠	RATING LABEL (For Model SC313A)	0EM405403
A 3 ⚠	RATING LABEL (For Model F313CA)	0EM405459
A 4	POP LABEL (For Model SC313A)	0EM405404
A 4	POP LABEL (For Model F313CA)	0EM404726
B 1	TENSION SPRING B0080B0EM40808	26WH006
B 2	CRT MOUNTING SCREW B0030U1K42419	8A00083
B 3	SHIELD PLATE (Z9 13V)	0EM405351
DB 1 ⚠	H/V PCB HOLDER	0EM201156
DL 1	SCREW P-TIGHT 3X10 BIND HEAD	GBUP3100
L 1	SCREW P-TIGHT 4X18 BIND HEAD +	GBMP4180
L 2	SCREW TAPPING M4X14	DBU14140
L 3	SCREW C-TIGHT M3X4 BIND HEAD+	GBMC3040
L 4	SCREW P-TIGHT 3X10 BIND HEAD	GBUP3100
S 1	CARTON (For Model SC313A)	0EM405405
S 1	CARTON (For Model F313CA)	0EM405461
S 2	STYROFOAM TOP ASSEMBLY	0EM405354
S 3	STYROFOAM BOTTOM ASSEMBLY	0EM405355
S 4	SERIAL NO. LABEL (For Model SC313A)	0EM405406
S 4	SERIAL NO. LABEL (For Model F313CA)	0EM405462
S 6	SET SHEET 800X1500	0EM402369
TB 1	TRAY CHASSIS	0EM000379
TB 2	TOP SHIELD	0EM301319
TB 3	HEAD SHIELD	0EM405408
TB 4	BOTTOM SHIELD	0EM405402
TB 8	SPEAKER HOLDER	0EM201157
TB 10	RCA HOLDER	0EM405407
TB 11	CLOTH(10X30XT0.5)	0EM404486
TL 1	SCREW P-TIGHT 3X12 WASHER HEAD+	GCMP3120
TL 3	SCREW S-TIGHT 3X4 BIND HEAD+ or	GBMS3040
	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
X 1	POLYETHYLENE BAG	Z223380
X 2 ⚠	OWNER'S MANUAL (For Model SC313A)	0EMN01601
X 2 ⚠	OWNER'S MANUAL (For Model F313CA)	0EMN01618
X 3	REMOCON UNIT 512/ERC001/N0107UD	N0107UD
X 4	DRY BATTERY R6P UM3	XB0M451GH001
	DRY BATTERY UM3/RS6 2PCS PACK or	579W099
	DRY BATTERY R6P(AR)2PX or	XB0M451HU002
	DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
X 5	ROD ANTENNA NTSC W/COO or	0EMN00673
	ROD ANTENNA	0EMN01599
X 22	RETURN STOP SHEET	0VM408869A

Note:
1. V501 (CRT) HAS COUPLE OF SUBSTITUTIONAL PARTS AND EACH PARTS ALSO HAS MATCHING COMBINATION WITH L551.
2. L551 (DEFLECTION YOKE) HAS MATCHING COMBINATION WITH V501. PLEASE SEE TABLE 1 FOR DETAILS AND COMBINATION.

Ref. No.	Description	Part No.
V 501 ⚠	CRT A34AGT13X or	TCRT190CP036
	CRT A34KPU02XX or	TCRT190GS016
	CRT A34LEX10X or	TCRT190SAM01
	CRT A34JLL90X(W) or	TCRT190QS015
	CRT A34KQW42X or	TCRT190SM013
	CRT A34LRQ90X(VW)	TCRT190P7003
	DEFLECTION YOKE	See Table 1
V 501-1	C.P.MAGNET JH225-FN-00	XM04000BV003
V 501-2	RUBBER MAGNET 20X10X1.2	XM05000BV001
V 501-5	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	DECK CLEANER ASSEMBLY	0ESA03378
	CL POST MK9	0VM410031
	CLEANER ASSEMBLY MK9	0VSA10119
	CLEANER LEVER MK9	0VM303854
	CLEANER ROLLER MK 9	0VM410032

Table 1 (V501 and L551 Combination)

V 501 CRT Type No.	V 501: CRT Part No.	L 551: Deflection Yoke Part No.
A34AGT13X	TCRT190CP036	LLBY00ZMS011
A34KPU02XX	TCRT190GS016	LLBY00ZSY002 or LLBY00ZMS003
A34JLL90X(W)	TCRT190QS015	LLBY00ZMS005
A34LEX10X	TCRT190SAM01	LLBY00ZMS014
A34KQW42X	TCRT190SM013	LLBY00ZMS006 or LLBY00ZSY002 or LLBY00ZSM004
A34LRQ90X (VM)	TCRT190P7003	LLBY00ZMS004

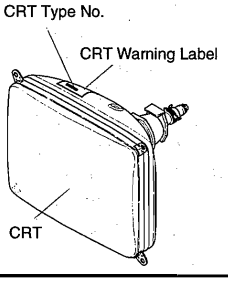
Note: Purity and Convergence Adjustments must be performed following CRT replacement. Refer to Electrical Adjustment Instructions.

Note:

Please confirm CRT Type No. on the CRT Warning Label which is located on the CRT. Then See the Table 1 for V501 and L551 combination chart.

Please refer this CRT, Deflection Yoke combination chart for parts order.

CRT Warning Label Location



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that not assigned part numbers (----------) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Main (MMA) CBA

Ref. No.	Description	Part No.
	Main (MMA) CBA Consists of the following	0ESA03371
	CAPACITORS	
C 006	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 007	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 008	CERAMIC CAP.(AX) SL J 56pF/50V	CCA1JJTSL560
C 009	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 010	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 011	CERAMIC CAP.(AX) B K 0.01µF/50V	CCA1JKT0B103
C 202	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 207	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 209	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 210	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 212	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 216	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL010
C 217	CHIP CERAMIC CAP. B K 0.022µF/50V	CHE1JKB0B223
C 218	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 219	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 220	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASTL221
C 222	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 223	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 224	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 225	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKT0X222
C 226	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 227	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 228	CERAMIC CAP. B K 560pF/50V	CCA1JKT0B561
C 234	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 235	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 237	CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKT0X682
C 238	CHIP CERAMIC CAP. F Z 0.047µF/50V	CHE1JZB0F473
C 243	ELECTROLYTIC CAP. 22µF/50V M	CE1JMASTL220
C 244	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 245	CHIP CERAMIC CAP. B K 0.022µF/50V	CHE1JKB0B223
C 246	ELECTROLYTIC CAP. 22µF/16V M LL	CE1CMASLL220
C 248	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 249	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 250	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 251	ELECTROLYTIC CAP. 22µF/50V M	CE1JMASTL220
C 252	CHIP CERAMIC CAP. B K 0.022µF/50V	CHE1JKB0B223
C 254	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 255	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 256	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 257	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 258	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 259	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 260	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 261	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASSL470
C 262	CHIP CERAMIC CAP. B K 2200pF/50V	CHE1JKB0B222
C 263	CHIP CERAMIC CAP. B K 2200pF/50V	CHE1JKB0B222
C 264	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 266	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 267	CHIP CERAMIC CAP. CH F 10pF/50V	CHE1JFBCH100
C 268	CHIP CERAMIC CAP. CH J 15pF/50V	CHE1JJBCH150
C 271	CHIP CERAMIC CAP. B K 0.022µF/50V	CHE1JKB0B223
C 273	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 275	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 276	CERAMIC CAP.(AX) Y K 0.01µF/16V	CCA1CKL0Y103
C 301	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 303	ELECTROLYTIC CAP. 220µF/16V M	CE1CMASTL221
C 304	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 307	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 308	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL010
C 311	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 312	PCB JUMPER D0.6-P5.0	JW5.0T
C 313	STACKED FILM CAP. 1.0µF/50 J	CMA1JJS00105
C 314	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 315	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 317	PCB JUMPER D0.6-P5.0	JW5.0T
C 318	PCB JUMPER D0.6-P5.0	JW5.0T
C 319	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL010
C 320	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 322	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL010
C 323	SEMICONDUCTOR CAP. YR K 0.015µF/25V	CDA1EKU0X153
C 324	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL010
C 325	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTL0R1
C 330	ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C 332	CHIP CERAMIC CAP. B K 0.022µF/50V	CHE1JKB0B223
C 333	PCB JUMPER D0.6-P5.0	JW5.0T
C 334	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 335	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASLL2R2
C 336	PCB JUMPER D0.6-P5.0	JW5.0T
C 337	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 338	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 339	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C 340	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTL0R1
C 341	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J	CMB1JJS00473
C 342	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 354	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 355	CARBON RES. 1/4W J 10M Ω	RCX4JATZ0106
C 356	CERAMIC CAP. SL J 680pF/50V	CCD1JJSSL681
C 358	ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C 360	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 362	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBSL470
C 363	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470

Ref. No.	Description	Part No.
C 365	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZLFZ104
C 366	FILM CAP.(MP) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(MP) 0.1µF/50V J or	CA1J104MS029
	FILM CAP.(MP) 0.1µF/50V J	CMB1JJS00104
C 401	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 402	CHIP CERAMIC CAP. B K 0.01µF/50V	CHE1JKB0B103
C 403	CHIP CERAMIC CAP. F Z 0.033µF/50V	CHE1JZB0F333
C 404	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 405	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 406	CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C 407	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C 408	CERAMIC CAP. SL J 18pF/50V	CCA1JJTSL180
C 409	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 410	CERAMIC CAP. SL J 180pF/50V	CCA1JKT0B181
C 412	PCB JUMPER D0.6-P5.0	JW5.0T
C 416	PCB JUMPER D0.6-P5.0	JW5.0T
C 419	ELECTROLYTIC CAP. 0.1µF/50V M H7 or	CE1JMASSL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSLR10
C 420	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 421	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 422	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 423	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 425	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C 429	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 430	ELECTROLYTIC CAP. 3.3µF/50V M H7	CE1JMASSL3R3
C 431	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 432	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 433	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 434	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 435	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 436	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMASSLR47
C 438	ELECTROLYTIC CAP. 0.1µF/50V M H7 or	CE1JMASSL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSLR10
C 439	CERAMIC CAP.(AX) F Z 0.033µF/16V	CDA1CZT0F333
C 440	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 442	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 443	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 444	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 445	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 446	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASTL2R2
C 447	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 450	ELECTROLYTIC CAP. 0.1µF/50V M H7 or	CE1JMASSL0R1
	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSLR10
C 452	CERAMIC CAP.(AX) F Z 0.033µF/16V	CDA1CZT0F333
C 453	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 455	ELECTROLYTIC CAP. 33µF/35V M	CE1GMASTL330
C 456	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTL0R1
C 457	ELECTROLYTIC CAP. 0.1µF/50V M H7 or	CE1JMASSLR10
	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 459	CHIP CERAMIC CAP. SL J 33pF/50V	CHE1JJBSL330
C 468	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 469	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBSL221
C 470	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBSL221
C 471	CERAMIC CAP. (AX) CH J 39pF/50V	CA1J390TU008
C 472	CHIP CERAMIC CAP. F Z 0.033µF/50V	CHE1JZB0F333

Ref. No.	Description	Part No.
C 601	FILM CAP.(P) 0.033µF/50V J or	CMA1JJS00333
	FILM CAP.(P) 0.033µF/50V J or	CA1J333MS029
	FILM CAP.(P) 0.033µF/50V J TV	CMB1JJS00333
C 602	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J TV	CMB1JJS00473
C 603	PCB JUMPER D0.6-P5.0	JW5.0T
C 604	FILM CAP.(P) 0.047µF/50V J or	CMA1JJS00473
	FILM CAP.(P) 0.047µF/50V J or	CA1J473MS029
	FILM CAP.(P) 0.047µF/50V J TV	CMB1JJS00473
C 605	FILM CAP.(P) 0.018µF/50V J or	CMA1JJS00183
	FILM CAP.(P) 0.018µF/50V J or	CA1J183MS029
	FILM CAP.(P) 0.018µF/50V J TV	CMB1JJS00183
C 606	ALMINIUM ELECTROLYTIC CAP150µF/200V or	CA2D151NC088
	ELECTROLYTIC CAPACITOR 150µF/200V	CA2D151S6012
C 607	CERAMIC CAP. BN 680pF/2kV or	CCD3DKA0B681
	CERAMIC CAP. LB 680pF/2K	CA3D681KG004
C 608 ⚠	METALLIZED FILM CAP. 0.1µF/250V or	CT2E104MS037
	FILM CAP.(MP) 0.1µF/250V M	CT2E104DC009
C 610	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 611	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 612	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 613	CERAMIC CAP. 0.01µF/AC250V or	CCD2EZA0F103
	CERAMIC CAP. F Z 0.01µF/500V	CCD2JZD0F103
C 615	ELECTROLYTIC CAP. 470µF/35V M	CE1GMASTL471
C 617	CERAMIC CAP.(AX) SL J 68pF/50V	CCA1JJTSL680
C 618	FILM CAP.(P) 0.018µF/50V J or	CMA1JJS00183
	FILM CAP.(P) 0.018µF/50V J or	CA1J183MS029
	FILM CAP.(P) 0.018µF/50V J TV	CMB1JJS00183
C 619	CERAMIC CAP. BN 470pF/2kV or	CCD3DKA0B471
	CERAMIC CAP. LB 470pF/2kV	CA3D471KG004
C 620	ELECTROLYTIC CAP. 100µF/160V M or	CE2CMZZTL101
	ELECTROLYTIC CAP. 100µF/160V M	CE2CMZPDL101
C 621	ELECTROLYTIC CAP. 10000µF/16V M	CE1CMZZTL102
C 622	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASTL471
C 623	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZZTL102
	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZPTL102
C 624	CERAMIC CAP.(AX) B K 0.01µF/50V	CCA1JKT0B103
C 625	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASTL2R2
C 626	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 628	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 629	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 630	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASTL221
C 631	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 632	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 633	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 634	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C 635	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
	If the C636 is used 4700pF/125V then follows below combination with C637.	
C 636 ⚠	SAFETY CAP. 4700pF/125V MX	CCF2BMA0F472
C 637 ⚠	PCB JUMPER D0.6-P10.0	JW10.0T
	If the C636 is used 0.01µF then follows below combination with C637.	
C 636 ⚠	CERAMIC CAP. 0.01µF F CS or	CCG2HMN0F103
	SAFETY CAP. FM 0.01µF/250V	CCG2EMP0F103
C 637 ⚠	CERAMIC CAP. 0.01µF F CS or	CCG2HMN0F103
	SAFETY CAP. FM 0.01µF/250V	CCG2EMP0F103
C 641	CHIP CERAMIC CAP. F Z 0.033µF/50V	CHE1JZB0F333
C 801	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZZTL102
	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZPTL102
C 802	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 804	ELECTROLYTIC CAP. 330µF/16V M	CE1CMASTL331

Ref. No.	Description	Part No.
C 807	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASTL2R2
C 809	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 811	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C 851	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 853	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASTL221
C 854	CERAMIC CAP. B K 470pF/100V or	CCD2AKS0B471
	CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C 855	FILM CAP.(P) 0.018µF/50V J or	CA1J183MS029
	FILM CAP.(P) 0.018µF/100V J or	CMA2AJS00183
	FILM CAP.(P) 0.018µF/100V J TV	CMB2AJS00183
C 856	CERAMIC CAP. (AX) B K 560pF/50V	CCA1JKT0B561
C 857	CERAMIC CAP. (AX) X K 2700pF/50V	CDA1CKT0X272
C 858	ELECTROLYTIC CAP. 10µF/35V M H7	CE1GMASSL100
C 859	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 860	SEMICONDUCTOR CAP. YR K 0.012µF/25V	CDA1EKU0X123
C 861	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 863	ELECTROLYTIC CAP. 1µF/50V M H7 or	CE1JMASSL010
	ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL1R0
C 864	ELECTROLYTIC CAP. 22µF/50V M	CE1JMASTL220
C 865	CHIP CERAMIC CAP. F Z 0.033µF/50V	CHE1JZB0F333
C 866	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 867	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASTL0R1
C 868	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C 869	CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
	CONNECTORS	
CN 201	CONNECTOR 8P TMC-J08P-A1	J3TMA08TG002
CN 202	FE CONNECTOR TOP 7P 07FE-BT-VK-N	JCFEJ07JG001
CN 301	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 302	CONNECTOR BASE 7P TUC-P07P-B1	J3TUA07TG001
CN 303	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 401	FE CONNECTOR TOP 4P 04FE-BT-VK-N	JCFEJ04JG001
CN 402	FE CONNECTOR TOP 9P 09FE-BT-VK-N	JCFEJ09JG001
CN 403	CABLE CONNECTOR 2P TMC-E02X-A1	JCTMC02TG001
CN 601	CONNECTOR BASE 2P TV-50P-02-V2 or	J3TVC02TG002
	CONNECTOR BASE 2P RTB-1.5-2P	J3RTC02JG001
CN 602	CONNECTOR BASE 6P TUC-P06P-B1	J3TUA06TG001
CN 801	STRAIGHT CONNECTOR BASE or	J383C02UG002
	STRAIGHT PIN HEADER 2P 173981-2	1770258
	DIODES	
D 003	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 205	LED SIR-563ST3F P	QPQPS1R563ST
D 206	LED LTL-4214M1 or	NPQZLTL4214M
	LED(RED)L-FORMING LT1814G-81-FL or	NP4Z0LT1814G
	LED L-53HT	NP4Z000L53HT
D 210	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 223	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 224	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 225	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 226	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 302	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 303	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 304	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 309	PCB JUMPER D0.6-P5.0	JW5.0T
D 312	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 315	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 316	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 317	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 318	ZENER DIODE MTZJT-7712B	QDTB00MTZJ12
D 320	ZENER DIODE MTZJT-7712B	QDTB00MTZJ12
D 601	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6

Ref. No.	Description	Part No.
D 602	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 603	ZENER DIODE MTZJT-7720C	QDTC00MTZJ20
D 604	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 606	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 607	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 608	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 609	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D 612 ⚠	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 613 ⚠	RECOVERY DIODE ERC18-04	QDZZ0ERC1804
D 614 ⚠	RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
	RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D 615 ⚠	DIODE 1ZC33	QDQZ0001ZC33
D 616 ⚠	SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D 617 ⚠	SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D 618	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 619	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 620 ⚠	RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
	RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D 621 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 622 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 623	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 624 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 625	ZENER DIODE MTZJT-7736A	QDTA00MTZJ36
D 628 ⚠	ZENER DIODE MTZJT-7713B	QDTB00MTZJ13
D 629 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 630	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 631	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 632	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 633	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 634	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 635	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 636 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 637	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 639 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133

Ref. No.	Description	Part No.
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 641	ZENER DIODE MTZJT-776.8A	QDTA0MTZJ6R8
D 644	PCB JUMPER D0.6-P5.0	JW5.0T
D 646	ZENER DIODE MTZJT-7720C	QDTC00MTZJ20
D 803	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
	ICS	
IC 201 ⚠	MICRO COMPUTER 16BIT M37760M8H8A6GP or	QSMAA0RMB020
	MICRO COMPUTER 16BIT M37760M8H8A7GP	QSMAB0RMB020
IC 202	IC:MEMORY BR24C01AF-W or	QSMBA0SRM002
	IC:MEMORY AT24C01A-10SC or	NSMMA0SAZ011
	IC:(EPROM) M24C01-MN6	NSMMA0SSS027
IC 203 ⚠	IC LB11880	QSBLA0SSY089
IC 204	PHOTO INTERRUPTER RPI-302	QPZZ00RP1302
IC 301 ⚠	IC:CHROMA/IF 1 CHIP M61203CFP	QSBBC0RMB001
IC 401	IC:Y/C/A LA71080M	QSBBA0RSY001
IC 601 ⚠	PHOTO COUPLER PC817X6 or	QPE600PC817X
	PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
	PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC 602 ⚠	VOLTAGE REGULATOR KIA7805API or	NSBBA0SJY011
	IC:VOLTAGE REGULATOR AN7805F	AN7805F
IC 801	AUDIO AMP LA4524	QSBLA0SSY087
	COILS	
L 001	PCB JUMPER D0.6-P5.0	JW5.0T
L 002	INDUCTOR 18µH-J-26T or	LLAXJATTU180
	INDUCTOR 18µH-K-26T	LLAXKDTKA180
L 031	PCB JUMPER D0.6-P5.0	JW5.0T
L 201	PCB JUMPER D0.6-P5.0	JW5.0T
L 202	INDUCTOR 0.10µH-K-26T or	LLAXKATTUR10
	INDUCTOR 0.1µH-M-26T	LLAXMDTKAR10
L 203	PCB JUMPER D0.6-P5.0	JW5.0T
L 301	PCB JUMPER D0.6-P5.0	JW5.0T
L 302	INDUCTOR 15µH-J-26T or	LLAXJATTU150
	INDUCTOR 15µH-K-26T	LLAXKDTKA150
L 303	PCB JUMPER D0.6-P5.0	JW5.0T
L 305	PCB JUMPER D0.6-P5.0	JW5.0T
L 306	CARBON RES. 1/4W J 12 Ω or	RCX4JATZ0120
	CARBON RES. 1/6W J 12 Ω	RCX6JATZ0120
L 307	PCB JUMPER D0.6-P5.0	JW5.0T
L 308	INDUCTOR 2.2µH-J-26T or	LLAXJATTU2R2
	INDUCTOR 2.2µH-K-26T	LLAXKDTKA2R2
L 309	INDUCTOR 6.8µH-J-26T or	LLAXJATTU6R8
	INDUCTOR 6.8µH-K-26T	LLAXKDTKA6R8
L 401	CHOKE COIL 47µH-K	LLBD00PKV007
L 402	PCB JUMPER D0.6-P5.0	JW5.0T
L 403	CHOKE COIL 47µH-K	LLBD00PKV007
L 404	INDUCTOR 100µH-J-26T or	LLAXJATTU101
	INDUCTOR 100µH-K-26T	LLAXKDTKA101
L 405	PCB JUMPER D0.6-P5.0	JW5.0T
L 410	INDUCTOR 2.2µH-J-26T or	LLAXJATTU2R2
	INDUCTOR 2.2µH-K-26T	LLAXKDTKA2R2
L 601 ⚠	LINE FILTER TLF12UA302W1R0 or	LLBG00ZTU025
	LINE FILTER 5.0MH 6Y075	LLBG00ZKT004
L 851	INDUCTOR 47µH-K-5FT or	LLARKBSTU470
	INDUCTOR 47µH-K-5FT	LLARKDSKA470
	TRANSISTORS	
Q 201	PHOTO TRANSISTOR ST-304L-A or	QPZA00ST304L
	PHOTO TRANSISTOR ST-304L-B or	QPZB00ST304L
	PHOTO TRANSISTOR ST-304L-C	QPZC00ST304L
Q 202	PHOTO TRANSISTOR ST-304L-A or	QPZA00ST304L
	PHOTO TRANSISTOR ST-304L-B or	QPZB00ST304L
	PHOTO TRANSISTOR ST-304L-C	QPZC00ST304L

Ref. No.	Description	Part No.
Q 203	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 206	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 301	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 302	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 303	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC3468(E)-AE	QQSE02SC3468
Q 401	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q 402	TRANSISTOR KTC3193(Y)	NQSY0KTC3193
Q 403	TRANSISTOR 2SC2839(E) or	C2839EZ
	TRANSISTOR 2SC2839(F) or	C2839FZ
	TRANSISTOR 2SC2058S (P) or	QQSP2SC2058S
	TRANSISTOR 2SC2058S (Q)	QQSQ2SC2058S
Q 404	TRANSISTOR 2SC2839(E) or	C2839EZ
	TRANSISTOR 2SC2839(F) or	C2839FZ
	TRANSISTOR 2SC2058S (P) or	QQSP2SC2058S
	TRANSISTOR 2SC2058S (Q)	QQSQ2SC2058S
Q 601	MOS FET 2SK2876	QFZZ02SK2876
Q 602	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 604 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198

Ref. No.	Description	Part No.
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 605	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 606 ⚠	TRANSISTOR 2SA950(O) or	Q2SA9500TPE2
	TRANSISTOR 2SA950(Y)	Q2SA950YTPE2
Q 607	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 608 ⚠	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 609 ⚠	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 610 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 611	TRANSISTOR 2SD400(F)	QQUF002SD400
Q 612	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR 2SA1346	2SA1346Z
Q 613 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 801	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 851	TRANSISTOR 2SA608NF-NPA-AT or	QQSF02SA608N
	TRANSISTOR 2SA608NG-NPA-AT or	QQSG02SA608N
	TRANSISTOR 2SA1317(U) or	QQSU02SA1317
	TRANSISTOR 2SA1317(T)	QQST02SA1317

Ref. No.	Description	Part No.
Q 852	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 853	RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
	RES. BUILT-IN TRANSISTOR 2SA1346	2SA1346Z
Q 854	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
Q 855	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
	RESISTORS	
J 074	CARBON RES. 1/4W J 470 Ω or	RCX4JZPZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JZPZ0471
R 001	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102
R 003	PCB JUMPER D0.6-P5.0	JW5.0T
R 004	PCB JUMPER D0.6-P5.0	JW5.0T
R 005	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 032	PCB JUMPER D0.6-P5.0	JW5.0T
R 201	CHIP RES. 1/10W G 4.7k Ω	RRXAGB6Z0472
R 202	PCB JUMPER D0.6-P5.0	JW5.0T
R 203	CHIP RES. 1/10W G 680 Ω	RRXAGB6Z0681
R 204	CHIP RES. 1/10W G 1.8k Ω	RRXAGB6Z0182
R 205	CHIP RES. 1/10W G 3.9k Ω	RRXAGB6Z0392
R 206	CHIP RES. 1/10W G 6.8k Ω	RRXAGB6Z0682
R 207	CARBON RES. 1/4W G 22k Ω or	RCX4GATZ0223
	CARBON RES. 1/6W G 22k Ω	RCX6GATZ0223
R 208	CHIP RE. 1/10W G 33k Ω	RRXAGB6Z0333
R 209	CHIP RES. 1/8W J 22k Ω or	RRX8JB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB6Z0223
R 210	CHIP RES. 1/8W J 22k Ω or	RRX8JB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB6Z0223
R 211	CHIP RES. 1/8W J 22k Ω or	RRX8JB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB6Z0223
R 212	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 213	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 214	CHIP RES. 1/8W J 1.5k Ω or	RRX8JB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB6Z0152
R 215	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 216	CHIP RES. 1/8W J 2.7k Ω or	RRX8JB6Z0272
	CHIP RES. 1/10W J 2.7k Ω	RRXAJB6Z0272
R 217	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 218	CHIP RES. 1/8W J 1.5k Ω or	RRX8JB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB6Z0152
R 219	CHIP RES. 1/8W J 1.5k Ω or	RRX8JB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB6Z0152
R 220	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 221	CHIP RES. 1/8W J 2.7k Ω or	RRX8JB6Z0272
	CHIP RES. 1/10W J 2.7k Ω	RRXAJB6Z0272
R 222	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
R 223	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 224	CHIP RES. 1/8W J 560k Ω or	RRX8JB6Z0564
	CHIP RES. 1/10W J 560k Ω	RRXAJB6Z0564
R 225	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 226	CARBON RES. 1/4W J 560k Ω or	RCX4JATZ0564
	CARBON RES. 1/6W J 560k Ω	RCX6JATZ0564
R 227	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 230	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 231	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 232	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 233	PCB JUMPER D0.6-P5.0	JW5.0T
R 234	PCB JUMPER D0.6-P5.0	JW5.0T
R 235	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 237	PCB JUMPER D0.6-P5.0	JW5.0T
R 239	PCB JUMPER D0.6-P5.0	JW5.0T
R 240	CHIP RES. 1/8W J 47 Ω or	RRX8JB6Z0470
	CHIP RES. 1/10W J 47 Ω	RRXAJB6Z0470
R 241	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 242	CHIP RES. 1/8W J 1.2k Ω or	RRX8JB6Z0122
	CHIP RES. 1/10W J 1.2k Ω	RRXAJB6Z0122
R 244	CHIP RES. 1/8W J 470k Ω or	RRX8JB6Z0474
	CHIP RES. 1/10W J 470k Ω	RRXAJB6Z0474
R 245	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102
R 247	PCB JUMPER D0.6-P5.0	JW5.0T
R 248	CHIP RES. 1/8W J 5.6k Ω or	RRX8JB6Z0562
	CHIP RES. 1/10W J 5.6k Ω	RRXAJB6Z0562
R 249	PCB JUMPER D0.6-P5.0	JW5.0T
R 250	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102
R 251	CHIP RES. 1/8W J 1M Ω or	RRX8JB6Z0105
	CHIP RES. 1/10W J 1M Ω	RRXAJB6Z0105
R 252	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 254	CHIP RES. 1/8W J 560 Ω or	RRX8JB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 255	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 256	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 257	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 258	CHIP RES. 1/8W J 560 Ω or	RRX8JB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 259	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 260	CHIP RES. 1/8W J 560 Ω or	RRX8JB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 261	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 262	CHIP RES. 1/8W J 560 Ω or	RRX8JB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 263	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 264	CHIP RES. 1/8W J 220 Ω or	RRX8JB6Z0221
	CHIP RES. 1/10W J 220 Ω	RRXAJB6Z0221
R 267	CARBON RES. 1/4W J 5.6k Ω or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k Ω	RCX6JATZ0562
R 268	CHIP RES. 1/8W J 5.6k Ω or	RRX8JB6Z0562
	CHIP RES. 1/10W J 5.6k Ω	RRXAJB6Z0562
R 269	CHIP RES. 1/8W J 39k Ω or	RRX8JB6Z0393
	CHIP RES. 1/10W J 39k Ω	RRXAJB6Z0393
R 270	CHIP RES. 1/8W J 220k Ω or	RRX8JB6Z0224
	CHIP RES. 1/10W J 220k Ω	RRXAJB6Z0224
R 274	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 275	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 276	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 277	PCB JUMPER D0.6-P5.0	JW5.0T
R 278	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 279	CHIP RES. 1/8W J 680 Ω or	RRX8JB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB6Z0681
R 280	CHIP RES. 1/8W J 100k Ω or	RRX8JB6Z0104
	CHIP RES. 1/10W J 100k Ω	RRXAJB6Z0104
R 281	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 282	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 283	CHIP RES. 1/10W J 0.47 Ω	RRXAKB6Z0R47
R 284	CARBON RES. 1/4W J 68k Ω or	RCX4JATZ0683
	CARBON RES. 1/6W J 68k Ω	RCX6JATZ0683
R 285	CHIP RES. 1/8W J 180 Ω or	RRX8JB6Z0181
	CHIP RES. 1/10W J 180 Ω	RRXAJB6Z0181
R 286	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 287	PCB JUMPER D0.6-P5.0	JW5.0T
R 288	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 289	CHIP RES. 1/8W J 1.8k Ω or	RRX8JB6Z0182
	CHIP RES. 1/10W J 1.8k Ω	RRXAJB6Z0182
R 290	CHIP RES. 1/8W J 560k Ω or	RRX8JB6Z0564
	CHIP RES. 1/10W J 560k Ω	RRXAJB6Z0564
R 291	PCB JUMPER D0.6-P5.0	JW5.0T
R 292	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 293	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 294	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 296	CHIP RES. 1/8W J 560 Ω or	RRX8JB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 297	CHIP RES. 1/8W J 10k Ω or	RRX8JB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB6Z0103
R 301	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 302	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 303	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 305	PCB JUMPER D0.6-P5.0	JW5.0T
R 307	CARBON RES. 1/4W J 2.7k Ω or	RCX4JATZ0272
	CARBON RES. 1/6W J 2.7k Ω	RCX6JATZ0272
R 308	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 309	CHIP RES. 1/8W J 3.3k Ω or	RRX8JB6Z0332
	CHIP RES. 1/10W J 3.3k Ω	RRXAJB6Z0332
R 312	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 313	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 314	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
R 315	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 316	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
R 317	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 318	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102

Ref. No.	Description	Part No.
R 319	CARBON RES. 1/4W J 18k Ω or	RCX4JATZ0183
	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 321	CHIP RES. 1/8W J 120k Ω or	RRX8JB6Z0124
	CHIP RES. 1/10W J 120k Ω	RRXAJB6Z0124
R 322	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
	CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 323	CHIP RES. 1/8W J 180k Ω or	RRX8JB6Z0184
	CHIP RES. 1/10W J 180k Ω	RRXAJB6Z0184
R 326	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 329	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 332	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 333	CHIP RES. 1/8W J 10k Ω or	RRX8JB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB6Z0103
R 334	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 335	CHIP RES. 1/8W J 10k Ω or	RRX8JB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB6Z0103
R 336	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 337	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102
R 341	CHIP RES. 1/8W J 330 Ω or	RRX8JB6Z0331
	CHIP RES. 1/10W J 330 Ω	RRXAJB6Z0331
R 342	CHIP RES. 1/8W J 470 Ω or	RRX8JB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB6Z0471
R 348	CHIP RES. 1/8W J 6.8k Ω or	RRX8JB6Z0682
	CHIP RES. 1/10W J 6.8k Ω	RRXAJB6Z0682
R 349	PCB JUMPER D0.6-P5.0	JW5.0T
R 351	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 352	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 353	CHIP RES. 1/8W J 100 Ω or	RRX8JB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB6Z0101
R 354	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 355	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 356	CHIP RES. 1/8W J 270 Ω or	RRX8JB6Z0271
	CHIP RES. 1/10W J 270 Ω	RRXAJB6Z0271
R 360	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 364	CARBON RES. 1/4W J 68k Ω or	RCX4JATZ0683
	CARBON RES. 1/6W J 68k Ω	RCX6JATZ0683
R 401	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 402	CHIP RES. 1/8W J 12k Ω or	RRX8JB6Z0123
	CHIP RES. 1/10W J 12k Ω	RRXAJB6Z0123
R 403	CHIP RES. 1/8W J 22k Ω or	RRX8JB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB6Z0223
R 406	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
R 407	CHIP RES. 1/8W J 1.5k Ω or	RRX8JB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB6Z0152
R 416	PCB JUMPER D0.6-P5.0	JW5.0T
R 417	PCB JUMPER D0.6-P5.0	JW5.0T
R 418	PCB JUMPER D0.6-P5.0	JW5.0T
R 419	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 420	CHIP RES. 1/8W J 330 Ω or	RRX8JB6Z0331
	CHIP RES. 1/10W J 330 Ω	RRXAJB6Z0331
R 421	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331

Ref. No.	Description	Part No.
R 422	CHIP RES. 1/8W J 1.5k Ω or	RRX8JB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB6Z0152
R 423	CHIP RES. 1/8W J 1.2k Ω or	RRX8JB6Z0122
	CHIP RES. 1/10W J 1.2k Ω	RRXAJB6Z0122
R 424	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 425	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 427	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 430	PCB JUMPER D0.6-P5.0	JW5.0T
R 432	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 439	CARBON RES. 1/4W J 4.7M Ω or	RCX4JATZ0475
	CARBON RES. 1/6W J 4.7M Ω	RCX6JATZ0475
R 445	PCB JUMPER D0.6-P5.0	JW5.0T
R 457	CHIP RES. 1/8W J 15k Ω or	RRX8JB6Z0153
	CHIP RES. 1/10W J 15k Ω	RRXAJB6Z0153
R 458	CHIP RES. 1/8W J 33k Ω or	RRX8JB6Z0333
	CHIP RES. 1/10W J 33k Ω	RRXAJB6Z0333
R 459	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 460	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 461	CHIP RES. 1/8W J 3.3k Ω or	RRX8JB6Z0332
	CHIP RES. 1/10W J 3.3k Ω	RRXAJB6Z0332
R 462	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 601	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 602	CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
	CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 603	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 604	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R 605	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 606	CARBON RES. 1/4W J 1M Ω or	RCX4JATZ0105
	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 607	CARBON RES. 1/4W J 1M Ω or	RCX4JATZ0105
	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 608	PCB JUMPER D0.6-P5.0	JW5.0T
R 609	PCB JUMPER D0.6-P5.0	JW5.0T
R 610	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 611	CEMENT RES. 5W K 1.2 Ω or	RW051R2DP005
	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2PG001
	CEMENT RESISTOR SQZ05S1R2J	RW051R2Y4001
R 612 ⚠	CARBON RES. 1/2W J 3.3M Ω or	RCX2335A4001
	ANTI-SURGE RESISTOR 1/2W J 3.3M Ω	RMX2335KA011
R 613 ⚠	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 614 ⚠	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R 615 ⚠	CEMENT RES. 5W J 3.3k Ω or	RW05332DP008
	CEMENT RES. 5W K 3.3k Ω	RW05332PG004
R 615 ⚠	CEMENT RESISTOR RS-SQZ05332J	RW05332Y4004
R 616 ⚠	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
	CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 617	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
	CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 618	CARBON RES. 1/4W J 22 Ω or	RCX4JATZ0220
	CARBON RES. 1/6W J 22 Ω	RCX6JATZ0220
R 619 ⚠	CARBON RES. 1/4W J 180 Ω or	RCX4JATZ0181
	CARBON RES. 1/6W J 180 Ω	RCX6JATZ0181
R 620 ⚠	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 621 ⚠	CARBON RES. 1/4W J 39k Ω or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 622 ⚠	CARBON RES. 1/4W J 39k Ω or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 624 ⚠	CARBON RES. 1/4W J 12k Ω or	RCX4JATZ0123
	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 625 ⚠	CARBON RES. 1/4W J 12k Ω or	RCX4JATZ0123
	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 626 ⚠	CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
	CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 627 ⚠	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 628 ⚠	CARBON RES. 1/4W J 5.6k Ω or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k Ω	RCX6JATZ0562
R 631	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 632	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 633 ⚠	FIXED METAL OXIDE FILM RES. 2W J 680 Ω or	RN02681DP004
	METAL RESISTOR 2W J 680 Ω or	RN02681ZU001
	FIXED METAL OXIDE FILM RES. 2W J 680 Ω	RN02681KE010
R 634 ⚠	CARBON RES. 1/4W J 56k Ω or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k Ω	RCX6JATZ0563
R 635	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 636	CARBON RES. 1/4W J 5.6k Ω or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k Ω	RCX6JATZ0562
R 637	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 638 ⚠	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 639 ⚠	FIXED METAL OXIDE FILM RES. 1W J 47 Ω or	RN01470DP003
	METAL RESISTOR 1W J 47 Ω or	RN01470ZU001
	FIXED METAL OXIDE FILM RES. 1W J 47 Ω	RN01470KE010
R 640 ⚠	FIXED METAL OXIDE FILM RES. 1W J 47 Ω or	RN01470DP003
	METAL RESISTOR 1W J 47 Ω or	RN01470ZU001
	FIXED METAL OXIDE FILM RES. 1W J 47 Ω	RN01470KE010
R 641 ⚠	CARBON RES. 1/2W J 5.6 Ω or	RCX2JZQZ05R6
	CARBON RES. 1/2W J 5.6 Ω or	RCX25R6KA013
	CARBON RES. 1/2W J 5.6 Ω	RCX2JZPZ05R6
R 643 ⚠	CARBON RES. 1/4W J 68 Ω or	RCX4JATZ0680
	CARBON RES. 1/6W J 68 Ω	RCX6JATZ0680
R 644	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 645 ⚠	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 646	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 647 ⚠	CARBON RES. 1/2W J 10 Ω or	RCX2JZQZ0100
	CARBON RES. 1/2W J 10 Ω or	RCX2100KA013
	CARBON RES. 1/2W J 10 Ω	RCX2JZPZ0100
R 648 ⚠	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 649	PCB JUMPER D0.6-P5.0	JW5.0T
R 650 ⚠	FIXED METAL OXIDE FILM RES. 2W J 10 Ω or	RN02100DP004
	METAL RES. 2W J 10 Ω or	RN02100ZU001
	FIXED METAL OXIDE FILM RES. 2W J 10 Ω	RN02100KE010
R 651	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 653	PCB JUMPER D0.6-P5.0	JW5.0T
R 654	FIXED METAL OXIDE FILM RES. 2W J 0.39 Ω or	RN02R39DP004
	FIXED METAL OXIDE FILM RES. 2W J 0.39 Ω	RN02R39KE010
R 659 ⚠	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 660 ⚠	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 661 ⚠	CARBON RES. 1/4W J 39 Ω or	RCX4JATZ0390
	CARBON RES. 1/6W J 39 Ω	RCX6JATZ0390
R 662	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 701	PCB JUMPER D0.6-P5.0	JW5.0T
R 702	CHIP RES. 1/4W J 75 Ω or	RRX8JB6Z0750
	CHIP RES. 1/6W J 75 Ω	RRXAJB6Z0750
R 703	PCB JUMPER D0.6-P5.0	JW5.0T
R 752	PCB JUMPER D0.6-P5.0	JW5.0T
R 801	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 802 ⚠	FIXED METAL OXIDE FILM RES. 1W J 12 Ω or	RN01JZPZ0120
	METAL RESISTOR 1W J 12 Ω or	RN01120ZU001
	METAL FILM RES.(STRAIGHT)1W J 12 Ω	RN01JZQZ0120
R 803	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 804	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 808	CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 810	CHIP RES. 1/8W J 15k Ω or	RRX8JB6Z0153
	CHIP RES. 1/10W J 15k Ω	RRXAJB6Z0153
R 812	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 851	CHIP RES. 1/8W J 680 Ω or	RRX8JB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB6Z0681
R 852	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 854	CHIP RES. 1/8W J 47k Ω or	RRX8JB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB6Z0473
R 855	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 856	CHIP RES. 1/8W J 820 Ω or	RRX8JB6Z0821
	CHIP RES. 1/10W J 820 Ω	RRXAJB6Z0821
R 857	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 858	CHIP RES. 1/8W J 2.2k Ω or	RRX8JB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB6Z0222
R 859	CHIP RES. 1/8W J 10k Ω or	RRX8JB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB6Z0103
R 860	CHIP RES. 1/8W J 1k Ω or	RRX8JB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB6Z0102
R 861	CHIP RES. 1/8W J 22k Ω or	RRX8JB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB6Z0223
R 862	PCB JUMPER D0.6-P5.0	JW5.0T
R 863	CARBON RES. 1/4W J 39k Ω or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 864	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
R 867	CHIP RES. 1/8W J 39k Ω or	RRX8JB6Z0393
	CHIP RES. 1/10W J 39k Ω	RRXAJB6Z0393
R 868	CHIP RES. 1/8W J 4.7k Ω or	RRX8JB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB6Z0472
	SWITCHES	
SW 201	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 202	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 203	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 204	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029

Ref. No.	Description	Part No.
	PUSH SWITCH KSM0612B	SST0101HH003
SW 205	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 206	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 207	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 208	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 209	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 210	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH SKHHAM or	SST0101AL029
	PUSH SWITCH KSM0612B	SST0101HH003
SW 211	PUSH SWITCH SPPB610301 or	SSP0102AL001
	PUSH SWITCH JPS1120-0601H	SSP0102SR001
SW 212	ROTARY MODE SWITCH SSS-34MD or	SSR0107KB001
	ROTARY MODE SWITCH HMW0650-010010	SSR0107HD001
	TRANSFORMER	
T 601 ⚠	SWITCHING TRANS SA-90801 or	LTT00CPSA066
	SWITCHING TRANS 9A03	LTT00CPKT043
	VARIABLE RESISTOR	
VR 601 ⚠	CARBON P.O.T. 10k Ω B or	VRCB103KA011
	CARBON P.O.T. 10k Ω B	VRCB103HH005
	CRYSTAL OSCILLATORS	
X 201	CRYSTAL OSCILLATOR 32kHz(10PPM) or	1811351
	CRYSTAL OSCILLATOR 32.768kHz or	FXB323LDS002
	CRYSTAL OSCILLATOR 32kHz(10PPM)	1811350
X 202	CRYSTAL OSCILLATOR HC-49/U or	FXD106LLN001
	CRYSTAL OSCILLATOR AT49-10.6 or	FXD106LDS002
	CRYSTAL OSCILLATOR :10.6MHz S8562	FXD106LCT001
X 301	CRYSTAL OSCILLATOR 3.579545 MHz	FXD355LLN003
X 401	CRYSTAL OSCILLATOR 3.579545MHz or	FXC355LLN001
	CRYSTAL OSCILLATOR 3.579545MHz	1811389
	MISCELLANEOUS	
BC 601	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 603	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 604	PCB JUMPER D0.6-P5.0	JW5.0T
BC 605	PCB JUMPER D0.6-P5.0	JW5.0T
BC 606	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 607	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
CF 301	CERAMIC FILTER 4.5MHZ	FBB455PMS001
CF 302	CERAMIC TRAP 4.5MHZ	FBE455PMS001
CL 802	WIRE ASSEMBLY 2P/150	WX1B5900-001
F 601 ⚠	FUSE TDS4A125VU/C or	PAGD20CW3402
	FUSE 4A/125V 237 TYPE	PAGJ20CAG402
FH 601	FUSE HOLDER MSF-015	XH01Z00LY001
FH 601 ⚠	FUSE HOLDER FH-V-03078	XH01Z00DK001
FH 602	FUSE HOLDER MSF-015	XH01Z00LY001
FH 602 ⚠	FUSE HOLDER FH-V-03078	XH01Z00DK001
JK 701	RCA JACK(YELLOW) AV1-15-3 or	JXRL010RP013
	RCA JACK(YELLOW) MSP-281V4-B	JXRL010LY003
JK 702	RCA JACK(WHITE) AV1-15-4 or	JXRL010RP014
	RCA JACK(WHITE) MSP-281V1-B	JXRL010LY005
JK 801	EARPHONE JACK HSJ1403-01-010 or	JYSL030HD002
	EARPHONE JACK HTJ-035-1ZEBTZ or	JYSL030GE001
	EARPHONE JACK MSJ-035-12APC	JYSL030LY001
PS 601 ⚠	POSISTER ZPB45BL7R0A	QNZZ45BL7R0A
RS 201	REMOTE RECEIVER PIC-26042LU or	USESJRSKK022
	REMOTE RECEIVER NJL65V367S	USESJRSJR012
SA 601 ⚠	SURGE ABSORBER JVR-07N471K or	NVQZVR07N471
	SURGE ABSORBER AVR-S07D471KAAS	QVQZ0AVRS07D
SF 001	SAW FILTER TSF5229P	FBB456PSY008
SG 601 ⚠	PCB JUMPER D0.6-P7.5	JW7.5T
SG 602 ⚠	GAP. G3.10D or	FAZ000LD6004
	GAP. WSG-R-3.10	FAZ000LW1002
SP 801	SPEAKER S08F02B	DSD0808XQ010
TB 5	HOLDER SENSOR(2)	0VM304011
TB 6	BUSH LED(E)	0VM408832
TB 7	LED HOLDER	0EM405410
TB 9	13VPOW HEAT SINK PEE ASSEMBLY	0EM405409
TL 2	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
TU 001	TUNER UNIT B8055AR or	UTUNNTUSP014
	TUNER UNIT TEDH9X203A or	UTUNNTUAL021
	TUNER UNIT NJH3022U254	UTUNNTUJR009
W 601 ⚠	AC CORD WAC0172AS006 or	WAC0172AS006
	AC CORD LA-2366	WAC0172LW006

MUT CBA

Ref. No.	Description	Part No.
	MUT CBA	0ESA03374
	Consists of the following	
	H/V CBA	----------
	CRT CBA	----------

H.V. CBA

Ref. No.	Description	Part No.
	H.V. CBA	----------
	Consists of the following	
	CAPACITORS	
C 552	FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1μF/50V J or	CA1J104MS029
	FILM CAP.(P) 0.1μF/50V J TV	CMB1JJS00104
C 553	ELECTROLYTIC CAP. 2.2μF/50V M LL	CE1JMASLL2R2
C 555	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASTL470
C 556	ELECTROLYTIC CAP. 1000μF/25V M or	CE1EMZZTL102
	ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPTL102
C 558	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 559	ELECTROLYTIC CAP. 100μF/35V M	CE1GMASTL101
C 560	FILM CAP.(P) 0.027μF/50V J or	CMA1JJS00273
	FILM CAP.(P) 0.027μF/50V J or	CA1J273MS029
	FILM CAP.(P) 0.027μF/50V J TV	CMB1JJS00273
C 572 ⚠	PP CAP. 0.33μF/250V J or	CT2E334MS041
	METALLIZED FILM CAP. 0.33μF/200V J	CT2D334F7001
C 574 ⚠	ELECTROLYTIC CAP. 4.7μF/250V M	CE2EMASTL4R7
C 577	FILM CAP.(P) 0.01μF/50V J or	CMA1JJS00103
	FILM CAP.(P) 0.01μF/50V J or	CA1J103MS029
	*MYLAR CAP. 0.01μF/50V J TV	CMB1JJS00103
C 578	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASTL470
C 580 ⚠	PP CAP. 0.0082μF/1.6kV J or	CT3C822MS039
	METALLIZED FILM CAP. 0.0082μF/1.6kV J	CT3C822F7002
C 584 ⚠	ELECTROLYTIC CAP. 1μF/160V M or	CE2CMASTL010
	ELECTROLYTIC CAP. 1μF/160V M	CE2CMASTL1R0
C 591 ⚠	ELECTROLYTIC CAP. 1μF/50V M H7or	CE1JMASSL1R0
	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 592	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASTL470
C 594	ELECTROLYTIC CAP. 10μF/160V M	CE2CMASTL100
	CONNECTORS	
CN 503	CONNECTOR 7P TUC-P07X-B1	JCTUS07TG001
CN 571	CONNECTOR BASE 5P TV-50P-05-V2 or	J3TVC05TG002
	CONNECTOR BASE 5P RTB-1.5-5P	J3RTC05JG001

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Ref. No.	Description	Part No.
	DIODES	
D 552	RECTIFIER DIODE ERA15-02	AERA1502****
D 571 ⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D 572 ⚠	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 573	PCB JUMPER D0.6-P5.0	JW5.0T
D 584 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 585	ZENER DIODE MTZJT-775.1B	QDTB0MTZJ5R1
D 591 ⚠	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D 593 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 595 ⚠	ZENER DIODE MTZJT-7720B	QDTB00MTZJ20
D 596 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 597 ⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 598	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
	IC	
IC 551 ⚠	VERTICAL OUTPUT IC LA78040	QSBLA0SSY088
	COILS	
L 505	CHOKE COIL 47µH-K	LLBD00PKV007
L 572 ⚠	INDUCTOR 33µH-K-5FT or	LLARKBSTU330
	INDUCTOR 33µH-K-5FT	LLARKDSKA330
	TRANSISTORS	
Q 571 ⚠	TRANSISTOR 2SD2627LS-YB11	QQZZ02SD2627
Q 572	TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q 591 ⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC536NF-NPA-AT or	QQSFC536NNPA
	TRANSISTOR 2SC536NG-NPA-AT or	QQSGC536NNPA
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
	TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
	TRANSISTOR 2SC1815GR-TPE2	2SC1815GRTPE
	RESISTORS	
R 542	PCB JUMPER D0.6-P12.5	JW12.5T
R 544 ⚠	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 551	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 552 ⚠	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 556	CARBON RES. 1/4W J 4.7 Ω or	RCX4JATZ04R7
	CARBON RES. 1/6W J 4.7 Ω	RCX6JATZ04R7
R 557	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 558	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 559	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 560	CARBON RES. 1/4W J 2.7k Ω or	RCX4JATZ0272
	CARBON RES. 1/6W J 2.7k Ω	RCX6JATZ0272
R 561	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 562	CARBON RES. 1/4W J 2.7 Ω	RCX4JATZ02R7
R 565 ⚠	CARBON RES. 1/4W J 3.9 Ω or	RCX4JATZ03R9
	CARBON RES. 1/6W J 3.9 Ω	RCX6JATZ03R9
R 566 1	CARBON RES. 1/4W J 3.9 Ω or	RCX4JATZ03R9
	CARBON RES. 1/6W J 3.9 Ω	RCX6JATZ03R9

Ref. No.	Description	Part No.
R 570 ⚠	CARBON RES. 1/4W J 3.9 Ω or	RCX4JATZ03R9
	CARBON RES. 1/6W J 3.9 Ω	RCX6JATZ03R9
R 573	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 574 ⚠	FIXED METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102DP004
	METAL RESISTOR 2W J 1k Ω or	RN02102ZU001
	FIXED METAL OXIDE FILM RES. 2W J 1k Ω	RN02102KE010
R 575 ⚠	FIXED METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102DP004
	METAL RESISTOR 2W J 1k Ω or	RN02102ZU001
	FIXED METAL OXIDE FILM RES. 2W J 1k Ω	RN02102KE010
R 576	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 577	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 578	PCB JUMPER D0.6-P5.0	JW5.0T
R 580 ⚠	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 581	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 582	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 583 ⚠	FIXED METAL OXIDE FILM RES. 1W J 2.7 Ω or	RN012R7DP003
	METAL RESISTOR 1W J 2.7 Ω or	RN012R7ZU001
	FIXED METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7KE010
R 584 ⚠	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 585	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 586	PCB JUMPER D0.6-P5.0	JW5.0T
R 587 ⚠	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 588	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 589 ⚠	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 591 ⚠	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 592 ⚠	CARBON RES. 1/4W J 180k Ω or	RCX4JATZ0184
	CARBON RES. 1/6W J 180k Ω	RCX6JATZ0184
R 593 ⚠	CARBON RES. 1/4W J 56k Ω or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k Ω	RCX6JATZ0563
R 594 ⚠	CARBON RES. 1/4W J 56k Ω or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k Ω	RCX6JATZ0563
R 596	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 597 ⚠	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 598 ⚠	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 599 ⚠	CARBON RES. 1/4W J 5.6k Ω or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k Ω	RCX6JATZ0562
	TRANSFORMERS	
T 571 ⚠	FLYBACK TRANS BSC25-2049S or	LTF00CPS2022
	FLYBACK TRANSFORMER JF0501-2402B	LTF00CPXB016
T 572	HORIZONTAL DRIVE TRANS LP2-004	LTH00CPA5004
	MISCELLANEOUS	
BC 571	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
CL503A	LEAD WIRE 7P 480MM	WX1T5000-004
DB 2	13V H/V HEAT SINK(PDX) T5100UA	0EM405399
DL 2	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
WH502B	WIRE HOLDER 6P HWT0200-06 or	XW0HT06C7001
	WIRE HOLDER 6P 51048-0600	XW01D06NF001
WH503B	WIRE HOLDER 7P HWT0200-07 or	XW0HT07C7001
	WIRE HOLDER 7P 51048-0700	XW01D07NF001
WH504A	WIRE HOLDER 5P HWT0200-05 or	XW0HT05C7001
	WIRE HOLDER 5P 51048-0500	XW01D05NF001

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA	----------
	Consists of the following	
	CAPACITORS	
C 501	CERAMIC CAP.(AX) B K 270pF/50V	CCA1JKT0B271
C 502	CERAMIC CAP.(AX) B K 270pF/50V	CCA1JKT0B271
C 503	CERAMIC CAP.(AX) B K 270pF/50V	CCA1JKT0B271
C 504	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASTL470
C 507	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL010
	ELECTROLYTIC CAP. 1.0µF/50V M	CE1JMASTL1R0
C 510	CERAMIC CAP. B K 1000pF/2kV or	CCD3DKD0B102
	CERAMIC CAP. 0.001µF/2kV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2kV	CA3D102MR030
	CONNECTOR	
CN 501	PIN CONNECTOR 005P-5100 or	JTEA001TG001
	CONNECTOR PIN 1P LV or	1700576
	CONNECTOR PIN 1P RT-01N-2.3A	1730688
	DIODES	
D 501	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 502	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
D 503	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	DIODE 1SS176TPA7	1SS176T
	COIL	
L 501 ⚠	INDUCTOR 180µH-J-5FT or	LLARJCSTU181
	INDUCTOR 180µH-K-5FT	LLARKDSKA181
	TRANSISTORS	
Q 501	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE	QQSE02SC2271
Q 502	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE	QQSD02SC3468
Q 502	TRANSISTOR 2SC2271(D)-AEMP	2SC2271DZ
Q 502	TRANSISTOR 2SC2271(E)-AE	QQSE02SC2271
Q 503	TRANSISTOR 2SC2482 TPE6	QQSZ02SC2482
Q 503	TRANSISTOR 2SC3468(E)-AE	QQSE02SC3468
Q 503	TRANSISTOR 2SC3468(D)-AE	QQSD02SC3468
Q 503	TRANSISTOR 2SC2271(D)-AEMP	2SC2271DZ
Q 503	TRANSISTOR 2SC2271(E)-AE	QQSE02SC2271
	RESISTORS	
R 501 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 502 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 503 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153DP003
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	FIXED METAL OXIDE FILM RES. 1W J 15k Ω	RN01153KE007
R 504	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 505	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 506	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 507	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 508	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 509	PCB JUMPER D0.6-P5.0	JW5.0T
R 510	PCB JUMPER D0.6-P5.0	JW5.0T
R 511	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 512	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 513	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 514	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 515	PCB JUMPER D0.6-P5.0	JW5.0T
R 516	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R 517	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 518	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R 519	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 520	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R 521	CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 531	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 532	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 536	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
	MISCELLANEOUS	
CL501A	LEAD WIRE 3P 320MM	WX1T5000-001
JK 501 ⚠	CRT SOCKET ISMS02S	JSCC220PK003
WH501A	WIRE HOLDER 3P HWT0200-03 or	XW0HT03C7001
	WIRE HOLDER 3P 51048-0300	XW01D03NF001
WH501B	WIRE HOLDER 3P HWT0200-03 or	XW0HT03C7001
	WIRE HOLDER 3P 51048-0300	XW01D03NF001
WH502A	WIRE HOLDER 6P HWT0200-06 or	XW0HT06C7001
	WIRE HOLDER 6P 51048-0600	XW01D06NF001
WH503A	WIRE HOLDER 7P HWT0200-07 or	XW0HT07C7001
	WIRE HOLDER 7P 51048-0700	XW01D07NF001
WH504B	WIRE HOLDER 5P HWT0200-05 or	XW0HT05C7001
	WIRE HOLDER 5P 51048-0500	XW01D05NF001

Junction A CBA

Ref. No.	Description	Part No.
	Junction A CBA	----------
	Consists of the following	
C 361	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
CN 504	CONNECTOR 5P TUC-P05X-B1	JCTUS05TG001
CL504A	LEAD WIRE 5P 270MM	WX1T5000-002

Junction B CBA

Ref. No.	Description	Part No.
	Junction B CBA	----------
CN 502	CONNECTOR 6P TUC-P06X-B1	JCTUS06TG001
CL502A	LEAD WIRE 6P 310MM	WX1T5000-003

Chassis Electrical Parts

Ref. No.	Description	Part No.
	CRT GND WIRE CRT GND	WX1L7720-001
	LEAD CLAMPER 100MM or	1790356
	LEAD CLAMPER	1790256
DG 601 ⚠	DEGAUSSING COIL F-016 or	LLBH00ZTM019
	DEGAUSSING COIL AVDG016 or	LLBH00ZWR016

Ref. No.	Description	Part No.
	DEGAUSSING COIL A4100399	LLBH00ZTZ016

DECK PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Ref. No.	Description	Part No.
2B 6	DECK GROUNDING PLATE U21	0VM410235
2L 051	SCREW S-TIGHT M3X6 BIND HEAD+	GBMS3060
ACH281	ACE HEAD(MK9) HVMXA1107A	DHV3A03AL011
ACH281	A/CÑE HEAD ASSEMBLY	N9752ACL
B 1	CHASSIS ASSEMBLY MK9	0VSA09994
B 2	CYLINDER ASSEMBLY MK9 NTSC 2HD SQPB	N9828CYL
B 3	LOADING MOTOR ASSEMBLY MK9 or	0VSA09996
	LOADING MOTOR ASSEMBLY MK9(SANKYO)	0VSA09997
B 4	L MOTOR HOLDER MK9	0VM303975
B 8	PULLEY ASSEMBLY MK9	0VSA10075
B 9	MOVING GUIDE S PREPARATION MK9	0VSA09985
B 10	MOVING GUIDE T PREPARATION MK9	0VSA09986
B 11	LOADING ARM T ASSEMBLY MK9	0VSA09984
B 12	LOADING ARM S ASSEMBLY MK9	0VSA10001
B 27	TENSION LEVAR SUB ASSEMBLY MK9	0VSA09999
B 31	AC HEAD ASSEMBLY MK9	0VSA10002
B 32	REEL T ASSEMBLY MK9	0VSA09975
B 35	TAPE GUIDE ASSEMBLY MK9	0VSA09988
B 37	CAPSTAN MOTOR F2QSB31 or	MMDZB25SJ001
	CAPSTAN MOTOR 288/CCM001	N9640CML
B 38	MODE LEVER A ASSEMBLY MK9 90	0VSA10045
B 46	REV SPRING MK9	0VM410019
B 52	CAP BELT MK9	0VM410080
B 73	FE HEAD(MK9) HVFHP0041A or	DHVEC01AL005
	FE HEAD ASSEMBLY or	N9740FEL
	FE HEAD(MK9) MH-131SF9	DHVEC01Z0002
B 74	PRISM 2 MK9	0VM202621
B 121	WORM MK9	0VM410021
B 126	PULLEY MK9	0VM410020
B 133	IDLER ASSEMBLY MK9	0VSA10000
B 148	TG CAP MK6	0VM407664C
B 300	FL ASSEMBLY MK9	0VSA09989
B 303	F DOOR OPENER MK9	0VM303855
B 304	DOOR OPENER A MK9	0VM303859
B 308	SLIDER SHAFT MK8	0VM409335
B 313	C.DRIVE SPRING MK9	0VM410039
B 319	CASSETTE SPRING MK8 or	0VM409333
	CASSETTE SPRING MK8	0VM409333
B 339	REEL S ASSEMBLY MK9	0VSA09974
B 344	CASSETTE GUIDE R MK9	0VM100831
B 345	CASSETTE GUIDE L MK9	0VM100830
B 347	GUIDE HOLDER MK9	0VM303856
B 350	SLIDER GEAR MK8 or	0VM409329
	SLIDER GEAR MK8	0VM409329
B 352	C DRIVE LEVER MK9	0VM303857
B 354	SLIDER R MK9	0VM202617
B 355	SLIDER L MK9	0VM202616
B 359	CLEANER LEVER MK9	
	SEE MECHANICAL PARTS LIST	
B 360	CLEANER ROLLER MK9	
	SEE MECHANICAL PARTS LIST	
B 361	CL POST MK9	
	SEE MECHANICAL PARTS LIST	
B 362	CLEANER ASSEMBLY MK9	
	SEE MECHANICAL PARTS LIST	
B 401	VH CONNECTOR 4A MK9	0VM303925
B 402	VH CONNECTOR 4B MK6	0VM407671
	ACH CONNECTOR AN(9P) MK9 or	0VM303991

Ref. No.	Description	Part No.
	ACH CONNECTOR AN(9P) MK9 or	0VM303991
B 404	ACH CONNECTOR B(9P) MK9 or	0VM410149
	ACH CONNECTOR B(9P) MK9	0VM410149
B 410	PINCH ARM(A) ASSEMBLY MK9	0VSA09978
B 411	PINCH SPRING MK9	0VM410290
B 414	M BRAKE S ASSEMBLY MK9	0VSA09981
B 416	M BRAKE T ASSEMBLY MK9	0VSA09983
B 417	TENSION SPG MK9	0VM410070
B 420	REC ARM MK9	0VM202622
B 421	REC ARM SPRING MK6	0VM407708D
B 423	CYLINDER SHIELD MK9	0VM303934
B 425	LOCK LEVER SPRING MK9	0VM410038
B 426	KICK PULLEY MK9	0VM410022
B 427	KICK SPRING MK9	0VM410025
B 472	SLIDER R ASSEMBLY MK9	0VSA09992
B 473	SLIDER L ASSEMBLY MK9	0VSA09993
B 475	BT ARM ASSEMBLY MK9	0VSA09982
B 476	REC ARM ASSEMBLY MK9	0VSA10043
B 480	PINCH ARM(B) ASSEMBLY MK9	0VSA09980
B 481	C.DRIVE SUB GEAR MK9	0VM202620
B 482	CASSETTE PLATE MK9	0VM202618
B 483	LOCK LEVER MK9	0VM410321
B 484	REEL SHAFT MK9	0VM410052
B 485	INSULATION CAP B MK9	0VM410155
B 487	BAND BRAKE MK9	0VM303872
B 488	MODE LEVER A MK9	0VM100833
B 489	FF RACK MK9	0VM303874
B 490	FF RACK SPG MK9	0VM410074
B 491	CAM GEAR(A) MK9	0VM202614
B 492	MODE GEAR MK9	0VM202615
B 493	C DRIVE GEAR MK9	0VM202619
B 494	DOOR OPENER B MK9	0VM303853
B 495	FIRST GEAR MK9	0VM303862
B 496	SECOND GEAR MK9	0VM303863
B 498	M LEVER HOLDER MK9	0VM303976
B 499	T LEVER HOLDER MK9	0VM303871
B 500	CENTER PULLEY MK9	0VM303875
B 501	WORM HOLDER MK9	0VM303974
B 502	CAM GEAR(B) MK9	0VM303882
B 504	P.S.W F 6*2.55*0.5	0VM402629A
B 505	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B 506	INSULATION CAP A MK9	0VM304051
B 507	REEL WASHER MK9 5*2.1*0.5	0VM410058
B 508	S BRAKE SPG MK9	0VM410066
B 509	MODE LEVER HOLDER A MK9	0VM304050
B 511	JOINT SPRING MK9	0VM410144
B 513	CAM WASHER MK9 8*3.1*0.5	0VM410232
B 514	SCREW:SLIDER R MK7	0VM408853
B 516	REEL WASHER MK9 5*2.1*0.5	0VM410058
B 517	P.S.W F 6*2.55*0.5	0VM402629A
B 518	P.S.W F 6*2.55*0.5	0VM402629A
B 519	P.S.W F 6*2.55*0.5	0VM402629A
B 520	T BRAKE SPG MK9	0VM410067
B 521	SOFT SPG MK9	0VM410079
B 522	TG POST ASSEMBLY MK9	0VSA10061
B 523	FIRST POST ASSEMBLY MK9	0VSA10062
B 524	MOTOR PCB ASSEMBLY(M) MK9	0VSA10063
B 524	MOTOR PCB ASSEMBLY(S) MK9	0VSA10064

Ref. No.	Description	Part No.
B 525	LDG BELT MK9	0VM410277
B 526	E RING	EEK0030
B 530	REEL SPACER MK9 5.7*2.7*0.5	0VM410293
B 531	JOINT SCREW MK9	0VM410292
B 532	JOINT HOLDER A MK9	0VM410246
B 533	JOINT HOLDER(B) MK9	0VM410247
B 534	STOP RUBBER MK9	0VM410330
B 540	REEL WASHER MK9 5*2.1*0.5	0VM410058
B 541	REEL WASHER MK9 5*2.1*0.5	0VM410058
L 1051	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L 1053	SCREW PRISM MK7	0VM409038
L 1081	SCREW S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1101	SCREW S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1151	SCREW SEMS M3X4 PAN HEAD +	CPM33040
L 1191	SCREW S-TIGHT M2.6X10 WASHER HEAD+	GCMS9100
L 1321	SCREW P-TIGHT M3X6 BIND HEAD+	GBMP3060
L 1341	SCREW P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L 1342	SCREW P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L 1406	SCREW S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L 1410	SCREW S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1450	SCREW SEMS M2.6X5 PAN HEAD+	CPM39050
L 1460	ADJUST SCREW M2.6X6(SOD)	0VM409436
L 1461	SCREW P-TIGHT M2.6X6 CUP HEAD+	GCMP9060
L 1462	SCREW P-TIGHT M2.6X12 PAN HEAD+	GPMP9120
L 1463	SCREW S-TIGHT M2.6X4 BIND HEAD+	GBMS9040
L 1464	SCREW P-TIGHT M2.6X8 PAN HEAD+	GPMP9080
L 1465	SCREW S-TIGHT M2.6X4 BIND HEAD+	GBMS9040
L 1466	SCREW S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1467	SCREW P-TIGHT M3X10 WASHER HEAD+	GCMP3100
L 1468	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L 1469	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L 1470	SCREW P-TIGHT M2.6X8 PAN HEAD+	GPMP9080
L 1471	SCREW S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L 1475	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060

Printed in Japan
2000-02-04 HO
T5100UA-01UB.